

Appeal Nos. 2014-1108, -1109, -1138

**United States Court of Appeals
for the Federal Circuit**

CSR, PLC,
Appellant,

v.

SKULLCANDY, INC.,
Cross-Appellant.

2014-1108, -1109, -1138

Appeals from the United States Patent and Trademark Office,
Patent Trial and Appeal Board in Nos. 95/001,305 and 95/001,369.

BRIEF FOR APPELLANT CSR PLC

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February 5, 2014

CERTIFICATE OF INTEREST

Pursuant to Federal Circuit Rules 27(a) (7) and 47.4(a),
counsel for Appellant CSR PLC certify the following:

1. The full name of every party or amicus represented by us is:

CSR PLC

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by us is:

CSR PLC

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of any party represented by us are:

None

4. The names of all law firms and the partners and associates that appeared for the parties now represented by us in trial court or are expected to appear in this Court are:

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STATEMENT OF RELATED CASES

CSR PLC is unaware of any other appeals or petitions taken in the two re-examination proceedings consolidated for this appeal. There have been a number of matters in other courts that involve the patents at issue in this appeal, U.S. Patent Numbers 7,187,948 and 7,395,090, or other patents in the same family.

The following cases involve the '948 and '090 Patents:

1. *Skullcandy, Inc. v. BlueAnt Wireless, Pty Ltd., et al.*, 2:09-cv-1072-CB (D. Utah) (closed Oct. 3, 2012).
2. *Skullcandy, Inc. v. BlueAnt Wireless, Pty Ltd., et al.*, 2:08-cv-391-TJW/CE (E.D. Tex.) (closed - transferred to D. Utah).

The following case involves the '948 Patent:

1. *Skullcandy, Inc. v. Anycom Techs., Inc., et al.*, 2:08-cv-090-DF (E.D. Tex.) (closed Oct. 3, 2008).

STATEMENT OF JURISDICTION

This consolidated appeal arises from two *inter partes* reexamination proceedings requested by CSR PLC (“CSR”) before the U.S. Patent and Trademark Office (“PTO”). The *inter partes* proceedings involved all claims for U.S. Patent Numbers 7,187,948 and 7,395,090 (“the ’948 Patent” and “the ’090 Patent,” respectively). The Patent Trial and Appeal Board (“Board”) affirmed the Examiner’s refusal to enter certain rejections finding a subset of the claims invalid. At the end of the *inter partes* reexaminations, the Board refused to enter rejections of claims 1-6 of the ’948 Patent and claim 5 of the ’090 Patent. CSR requested rehearing in both reexamination proceedings, which the Board denied on August 6, 2013. The Board’s decisions are final and appealable. CSR appealed. This Court has jurisdiction under 35 U.S.C. § 141.

I. STATEMENT OF THE ISSUES

1. Whether the Board erred in affirming the Examiner's decision not to enter rejections of claims 1 and 4 of the '948 Patent as anticipated and/or obvious based on the disclosures in the Smith reference (U.K. Patent Publication No. 2,357,663), and not to enter rejections of claims 2-3 and 5-6 as obvious over Smith in light of other references. In particular, the issue is whether the Board erred by finding that the Smith reference did not disclose the requisite "threshold value" element of independent claims 1 and 4, when the Board failed to provide any construction for that term or to give the term its broadest reasonable construction as it was required to do.

2. Whether the Board erred in affirming the Examiner's decision not to enter the rejections of claims 4-6 of the '948 Patent as lacking written description under 35 U.S.C. §112, ¶ 1, for adding the further limitation of having a coupling device that is portable with an audio device and a two-way communication device during use of the coupling device when the patent specification fails to contain any description of such a limitation.

3. Whether the Board's conclusion that the Smith reference does not disclose a detached connector, as recited in Claim 5 of the '090 Patent, lacks substantial evidence.

II. STATEMENT OF THE CASE

This is a consolidated appeal from the Board's affirmance of the Examiner's refusal to invalidate all claims from the '948 Patent in *Inter Partes* Reexamination Control Number 95/001,305 and the Board's affirmance of the Examiner's refusal to invalidate claim 5 from the related '090 Patent in *Inter Partes* Reexamination Control Number 95/001,369.

The Examiner issued a Supplemental Right of Appeal Notice for the '305 reexamination on June 6, 2011, in which all claims were allowed as patentable over the Smith reference for the very first time during the reexamination proceedings. The Examiner also rejected CSR's argument that the newly added claims 4-6 were invalid under § 112, ¶ 1, for lacking a sufficient written description. Until the entry of this Supplemental Right of Appeal Notice, the Examiner had consistently maintained the rejections of all of the claims of the '948 Patent, including in the original Right of Appeal Notice. The Board issued its decision affirming the Examiner's Supplemental Right of Appeal Notice on February 21, 2013, and a final and appealable decision denying a request for rehearing on August 6, 2013.

The Examiner issued a Right of Appeal Notice for the '369 reexamination on November 4, 2011, in which the Examiner refused to enter rejections for any of the 74 claims (including claim 5 at issue in this appeal). The

Board issued its decision on February 20, 2013, reversing the Examiner’s decision on all claims except for claim 5, and entered rejections for claims 1-4 and 6-74 as invalid. The Board entered a final and appealable decision denying a request for rehearing on August 6, 2013, in which it upheld its decision.

CSR appeals the Board’s decision to adopt the Examiner’s decision not to enter rejections of claims 1-6 of the ’948 Patent and claim 5 of the ’090 Patent as anticipated and/or obvious in light of the Smith reference, and not to enter rejections of claims 4-6 of the ’948 Patent as invalid for lacking written description under § 112, ¶ 1.

III. STATEMENT OF THE FACTS

A. The Invention

The ’948 and ’090 Patents¹ (together, “the Alden Patents”) are related patents that disclose a portable integrator that can be used to combine or mix the audio feeds of two independent devices. A58, Abstract. According to the specification, one of the devices can be an arbitrarily selectable audio device such as an MP3, CD, or DVD player. A68, col. 1:57-61. The second device can be an arbitrarily selectable two-way communication device, such as a mobile phone, HAM radio, or aviation radio. *Id.*, col. 1:61-67. The following diagram shows an

¹ The ’090 Patent is a continuation of the ’948 Patent.

embodiment of the portable integrator in which the devices are connected using wires:

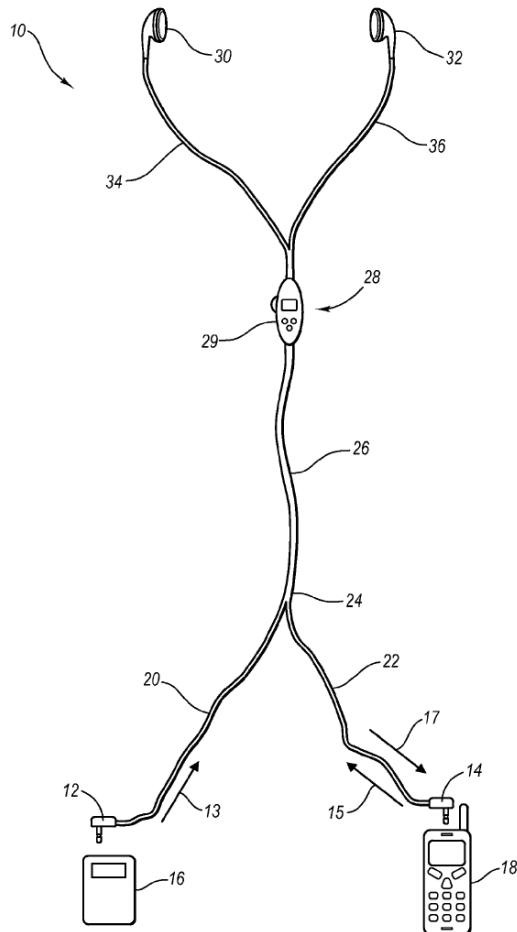


Fig. 1

A60, Fig. 1. The portable integrator receives both the signal output from the audio device (audio signal 13) and the signal output from the two-way communication device (audio signal 15). *Id.*; A69, col. 3:34-46.

The audio signals output from the two different devices can be input into a mixing device, shown as element 66 in the following diagram of a portable integrator:

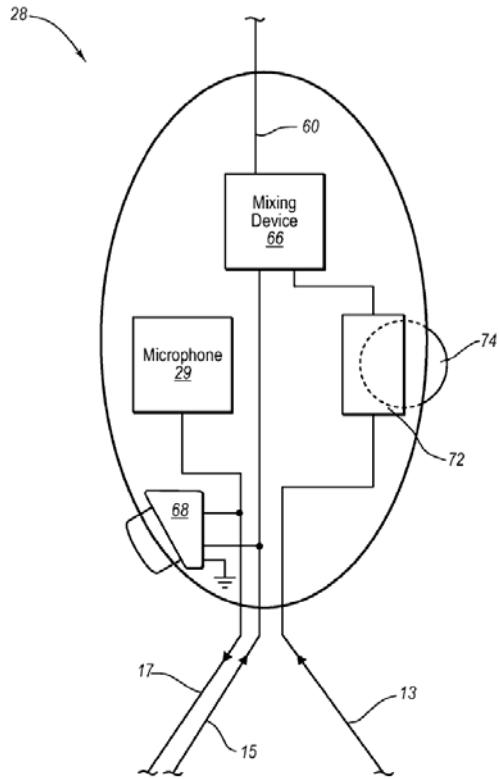


Fig. 7

A66, Fig. 7; A70, col. 5:21-25. According to the specification, volume control can be applied to the audio signals, such as by volume controller 72, which is depicted as controlling the input to the mixing device from the audio device. A70, col. 5:54-57.

In addition to a mixing device, the Alden Patents also disclose an adapter that can provide interfaces to various devices. A62, Fig. 3; A69, col. 4:34-37. The adapter can connect to the audio and two-way communication devices, and to the mixing device, as shown in the following diagram:

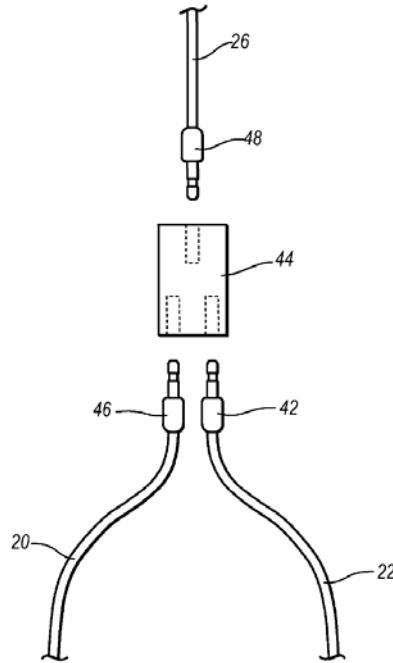


Fig. 3

A62, Fig. 3. The specification describes that the adapter may “wirelessly communicate with each of the devices . . . using a wireless technology, thereby acting as a wireless communication hub.” A69, col. 4:48-50. The specification does not, however, provide any information describing the physical structure of an adapter that could be used to facilitate these wireless transmissions.

The Alden Patents also disclose another wireless embodiment in which both the audio device and the two-way communication device are physically connected to a transceiver. That transceiver communicates wirelessly with a second transceiver that is physically connected to the mixing device. A70, col. 6:5-17. Audio signals can be wirelessly transmitted from the transceiver connected to the audio devices to the transceiver connected to the mixer and headphones. *Id.*

According to the Alden Patents, a threshold value can be used to provide priority to the audio signal output from the two-way communication device. The entire disclosure concerning this limitation consists of three sentences appearing at the end of the Summary of Invention:

In selected embodiments, the audio signal from the two-way communication device may be characterized by a threshold value. The second audio signal may be accorded priority relative to the first audio signal originating from the audio delivery device. Thus, the second audio signal may interrupt the first audio signal upon reaching the threshold value.

A68, col. 2:38-47.

B. The Claims

The '948 Patent. Claims 1 and 4 are the two independent claims in this patent. Claim 1 recites:

1. A portable and wireless apparatus for wirelessly integrating a two-way communication device and an audio delivery device, wherein the portable and wireless apparatus is configured in size and shape to be portably carried in either a hand of a user or an article of clothing during use of the portable and wireless apparatus, the portable and wireless apparatus comprising:

means for wirelessly receiving a first audio signal from a substantially arbitrarily selectable audio delivery device;

means for wirelessly receiving a second audio signal from a substantially arbitrarily selectable two-way communication device;

a coupling device independent from the audio and two-way communication devices, wherein the second audio signal is characterized by a threshold value, the second audio signal is

accorded priority relative to the first audio signal, and the second audio signal interrupts the first audio signal upon reaching the threshold value, the coupling device comprising said means for receiving said first and second audio signals, said coupling means further comprising:

means for transmitting a third audio signal comprising at least one of the first or second audio signals to an acoustic device adapted to convert the third acoustic wave to an audio range corresponding to a hearing range of a user.

A70-71. Claim 1 was not amended during the reexamination process.

Skullcandy added the second independent claim, claim 4, to the '948 Patent during reexamination. It is similar to claim 1 but adds further language requiring that both the audio delivery device and the two-way communication device be "configured in size and shape to be portably carried in either a hand of a user or an article of clothing," and that the coupling device be "portable with the audio and two-way communication devices by the same user during use of the coupling device." A981.

Claims 2 and 3 depend from claim 1, and corresponding claims 5 and 6 depend from claim 4. Each set of dependent claims covers the ability to mix the audio signals output from each input device. A71; A982.

The '090 Patent. Claim 5 depends from claim 1. Claims 1 and 5 together recite:

[Claim 1] A portable apparatus for integrating a two-way communication device and an audio delivery device, wherein the portable apparatus is configured in size and shape to be portably carried in either a hand of a

user or an article of clothing during use of the portable apparatus, the apparatus comprising:

- a first electrical connector configured to receive a first audio signal from a substantially arbitrarily selectable audio delivery device;
- a second electrical connector configured to receive a second audio signal from a substantially arbitrarily selectable two-way communication device;
- a coupling device independent from the audio and two-way communication devices, the coupling device connected to receive the first and second audio signals, and to transmit a third audio signal comprising at least one of the first or second audio signals; and
- an acoustic device adapted to convert the third audio signal to an acoustic wave having an audio range corresponding to a hearing range of a user;

wherein

the coupling device comprises at least two physically separate devices; and

the at least two physically separate devices comprise means for enabling wireless communication between the at least two physically separate devices;

[Claim 5] wherein at least one of the first or second electrical connectors is physically detached from the coupling device and wirelessly communicates with the coupling device.

A85-86. Claim 5 was not amended during the reexamination process.

C. The Smith Reference

The Smith reference² describes various pieces of so-called “legacy equipment”: electrical devices that do not have wireless circuitry integrated as standard. A1172. Such devices normally have to be connected together by cables. *Id.* Wireless standards, such as Bluetooth and IEEE 802.11, replace cables by allowing short range wireless communications, and many manufacturers embraced these standards by integrating wireless communication circuitry directly into their products. A1173. For users who would rather upgrade their existing systems in stages, this poses a problem as their existing legacy equipment will not be able to interface with any new wireless-enabled equipment that they buy. *Id.*

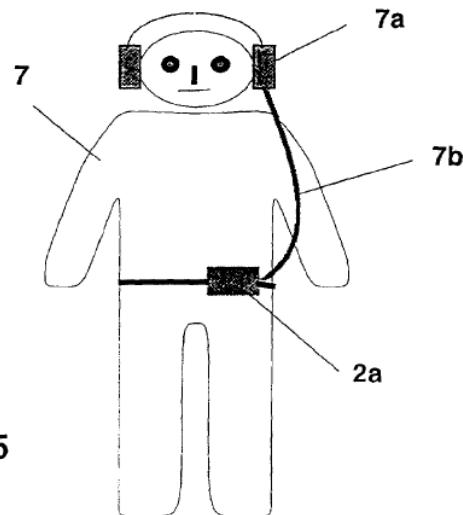
The Smith reference discloses a wireless communication adapter that can be used to replace wired means for interconnecting various devices and to provide legacy equipment with the capability to communicate wirelessly. The wireless communication adapter comprises an antenna, RF circuitry, and a baseband module. A1175; A1163, Fig. 1. It also has one or more connectors for interfacing directly with the legacy equipment.

Smith discloses a range of legacy devices that could be used with the wireless communication adapter, including portable devices, such as a Walkman or

² U.K. Patent Publication No. 2,357,663, titled “Wireless communication adaptor.” A1162-93.

a portable radio receiver, as well as mobile telephones. A1178-79; A1186, Claim 12.

In one example of a portable application, Smith discloses that the wireless communication adapter (2a in the diagram below) can be used to connect to a legacy set of headphones (7a) allowing the user to listen to music or audio signals anywhere in the home, as shown in the following diagram:



A1165, Fig. 5; A1178. The wireless communication adapter receives the audio feed wirelessly from other equipment, such as hi-fi equipment. The wireless communication adapter passes this audio feed via a cable (7b) to the set of legacy headphones (7a). A1178. Smith teaches that the hi-fi equipment could be legacy equipment attached to its own wireless communication adapter. *Id.* In this scenario, the wireless communication adapter attached to the legacy hi-fi

equipment wirelessly communicates with and sends audio signals to the wireless communication adapter attached to the user's headphones. *Id.*

Smith also discloses a wireless communication adapter communicating with a mobile or landline telephone. A1178-79. For example, Smith discloses that the wireless communication adapter connected to the headphones could also "receive incoming telephone calls from a phone, either a mobile or land line connected within the house or car (if parked near the house)." A1179. Incoming calls are directed to the wireless communication adapter connected to the headphones, which alerts the user to the call. *Id.* When that occurs, "the other signal (music in this example) would be stopped so the user and the person on the other end of the phone would not hear the music." *Id.*

Smith further discloses that the wireless communication adapter can be used in portable applications, "as long as the user 7 is within **good signal** range of the remote unit to allow no-corrupt and error free reception/transmission of the wireless data." A1178 (emphasis added). When describing the telephone scenario, Smith further discloses that the incoming telephone call to the mobile or land-line could be "connected within the house or car (**if parked near the house**)."⁷ A1179 (emphasis added).

D. Dispute Over the “Threshold Value” Element Before the PTO

Before the PTO, the parties vigorously disputed the meaning of the claim term “threshold value” in the ’948 Patent. In its initial request for reexamination filed on February 2, 2010, CSR devoted three pages to discussing the “threshold value” element recited in the claims. A1090-92. CSR explained that the broadest reasonable construction of the words “upon reaching a threshold value” must include situations in which the receipt of a second audio signal by the portable apparatus is sufficient for the second audio signal to have met the “threshold value” and interrupt the first audio signal because the signal’s receipt indicates that it must have attained at least some ***non-zero*** value. A1090.

CSR also considered the relevant disclosures in the specification, which consist solely of three sentences at the end of the Summary of Invention (reproduced on page 8 of this brief). After describing that the threshold value can be used to accord priority to the second audio signal relative to the first audio signal, the specification states, “Thus, the second audio signal may interrupt the first audio signal upon reaching the threshold value.” A68, col. 2:38-47. It is apparent from the word “thus” in this sentence that the function of the threshold value is to govern when the user will be alerted to an incoming call.

This is fully consistent with the broadest reasonable construction of the words “upon reaching a threshold value”: the threshold value could be set to

be any ***non-zero*** value sufficient to allow the second audio signal to be received by the portable apparatus. A1092. CSR further noted that an implementation in which receipt of the second audio signal by the portable apparatus is sufficient to interrupt the first audio signal would address one of the problems identified in the '948 Patent: prior art systems continuing to play music even though a phone was ringing in the background. A1091. Conversely, requiring the second audio signal to reach some value over and above the value at which the second audio signal is received before allowing it to interrupt the first audio signal would lead to music still being played while the phone is ringing, and thus ***not*** solve the problem the '948 Patent explicitly sets out to address. CSR consistently maintained this position throughout the reexamination process. A233; A696-98.

For its part, Skullcandy grasped at various interpretations of the term “threshold value” during the course of the reexamination. In its response to the first office action, Skullcandy focused on the limitation of “upon reaching the threshold value” to argue that “the second audio signal [must] have values that do ***not*** interrupt the first audio signal”; otherwise no threshold could be reached. A991 (emphasis in original). In its response to the Action Closing Prosecution, Skullcandy proposed that the term “threshold value” refers to a value ***encoded in*** the audio signal. A570. Then, when Skullcandy filed its brief responding to CSR’s appeal, it proposed that “threshold value” refers to the value of a ***received*** audio

signal. A295. Finally, on appeal to the Board, Skullcandy introduced a fourth argument based upon the “means for” language that provides structural requirements of the claim. A295.

The Board did not, however, address the parties’ actual contentions in its decision. Instead, it issued a ruling that devotes only one paragraph to this dispute, with the following as its only analysis:

In other words, Smith discloses a user receiving a phone call while listening to an audio signal (i.e. music) via an adapter, the adapter stopping the music in response to receiving the phone call. While Smith discloses stopping an audio signal responsive to receiving a phone call, Appellant does not demonstrate that Smith also discloses the signal from the phone call “reaching the threshold value.” In fact, Smith does not appear to disclose a “threshold value” at all.

A8. The Board affirmed this decision in denying CSR’s Request for Rehearing. A14-15.

IV. SUMMARY OF ARGUMENT

The Board allowed the claims of the ’948 Patent over the anticipatory Smith reference on the sole basis that Smith purportedly does not disclose the “threshold value” element recited in the two independent claims. A8-9; A14-15. The Board, however, never construed the “threshold value” element at issue. This failure, by itself, constitutes reversible error.

Even if this Court finds that the Board did not err by failing to construe the term “threshold value,” the Board still erred because it failed to apply the broadest reasonable construction to this claim element. Because the broadest reasonable construction of “threshold value” must be formed in light of the disclosures in the specification, a proper construction of the term must be broad enough to include *any* non-zero value at which the signal can be received. Because Smith discloses that the personal wireless adapter provides priority to the audio signal from the phone by commanding the other audio device to pause when the adapter determines that an incoming call is being routed to it, Smith discloses the broadest possible construction of the “threshold value” limitation recited in claims 1 and 4 of the ’948 Patent.

Smith does not use the literal phrase “threshold value,” but for the reasons explained in the preceding paragraph, one having ordinary skill in the art would nonetheless have understood Smith to have disclosed a threshold value at which the audio signal from the telephone would interrupt the audio signal from the hi-fi equipment. The Board further erred in never considering this argument.

A129-30.

The claims of the ’948 Patent that Skullcandy added in the course of reexamination, claims 4-6, also fail the written description requirement because the patent specification provides no support for the additional language added to

independent claim 4. This language requires that the coupling device be “portable with the audio and two-way communication devices by the same user during use of the coupling device.” Nothing in the ’948 specification discloses such a configuration.

Finally, the Board’s decision on claim 5 of the ’090 Patent lacks substantial evidence because the Board considered the wrong structure in Smith and, in the process, overlooked relevant disclosures in that reference.

V. ARGUMENT

A. Standard of Review

Claim construction by the PTO is a question of law reviewed *de novo*. *In re Baker Hughes Inc.*, 215 F.3d 1297, 1301 (Fed. Cir. 2000).³ “During reexamination, as with original examination, the PTO must give claims their broadest reasonable construction consistent with the specification.” *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007). Thus, this Court “reviews the PTO’s interpretation of disputed claim language to determine whether

³ This Court is currently considering an appeal in which it has asked the parties to address the amount of deference, if any, to be afforded claim constructions from district courts. *See Lighting Ballast Control, LLC v. Philips Electronics N. Am. Corp.*, Appeal No. 12-1014, (Fed. Cir.). The Court’s ruling in that case may have a bearing on the deference to be afforded claim constructions by the Patent Trial and Appeal Board.

it is ‘reasonable.’” *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1259 (Fed. Cir. 2010).

“Anticipation is a question of fact reviewed for substantial evidence.”

Id. A finding is supported by substantial evidence if a reasonable mind might accept the evidence to support the finding. *Consol. Edison Co. v. Nat'l Labor Relations Bd.*, 305 U.S. 197, 59 S.Ct. 206 (1938). “What a reference teaches is a question of fact,” with the Board’s determination on questions of fact being reviewed for substantial evidence. *Rapoport v. Dement*, 254 F.3d 1053, 1060-61 (Fed. Cir. 2001).

Under the written description requirement, the “application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention.” *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). “[T]he test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010). “[T]he test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art” to determine if the specification “describe[s] an invention understandable to that skilled artisan and show[s] that the inventor actually

invented the invention claimed.” *Id.* “A description which renders obvious the invention . . . is not sufficient.” *Lockwood*, 107 F.3d at 1572.

Although the ultimate determination of obviousness under 35 U.S.C. § 103 is a question of law reviewed *de novo*, it is based on several underlying factual findings, including the differences between the claimed invention and the prior art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Those factual determinations are reviewed for substantial evidence. *In re Kahn*, 441 F.3d 977, 985 (Fed. Cir. 2006).

B. The Board Erred In Refusing to Enter the Rejections of All Claims of the '948 Patent

1. The Board erred in failing to provide a construction for the “threshold value” element in the '948 Patent

The Board allowed the claims of the '948 Patent over the anticipatory Smith reference on the sole basis that Smith purportedly does not disclose the “threshold value” element recited in the two independent claims. A8-9; A14-15. The Board, however, never construed the term “threshold value.” This failure, by itself, constitutes reversible error.

The absence of a clear construction fails to satisfy the well-established requirement that “a Board opinion must contain sufficient findings and reasoning to permit meaningful appellate scrutiny.” *Gechter v. Davidson*, 116 F.3d 1454, 1458 (Fed. Cir. 1997). “Necessary findings must be expressed with sufficient particularity to enable the court, without resort to speculation, to understand the

reasoning of the Board” *Id.* at 1457. In *Gechter*, as here, the Board failed to construe a disputed claim term before making its finding of anticipation. *Id.* at 1460. This Court vacated and remanded the Board’s finding for that independent reason, holding: “Claim construction must also be explicit, at least as to any construction disputed by the parties.” *Id.*; see also *O2 Micro Int’l Ltd. v. Beyond Innovations Techs.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) (“A determination that a claim term ‘needs no construction’ or has the ‘plain and ordinary meaning’ may be inadequate when a term has more than one ‘ordinary’ meaning or when reliance on a term’s ‘ordinary’ meaning does not resolve the parties’ dispute.”).

As demonstrated above, the term “threshold value” was hotly disputed by the parties and is essential to resolution of this dispute. CSR focused on the plain meaning of the words in the claim and the relevant disclosures in the specification. A1090-92. The ’948 Patent does not say explicitly what it means by “threshold value.” But it does indicate that the function of the threshold value is to govern when the user will be alerted to an incoming call. A68, col. 2:45-47. It is within the broadest reasonable construction of “threshold value” for it to include the value at which the audio signal from the two-way communication device is received – in other words, the value at which the portable apparatus recognizes the presence of a second audio signal from the two-way communication device. A1092.

Skullcandy focused its interpretation of “threshold value” sometimes on signals that the portable and wireless apparatus receives and at other times on signals already received by the portable and wireless apparatus. A991; A116. At another time, Skullcandy argued, without citation, that the “threshold value” corresponded to some value encoded in the audio signal itself. A570.

Yet the Board inexplicably failed to construe this term in its opinion. In fact, it did not even purport to make a finding concerning the “threshold value” element in the ’948 Patent claims. The Board, instead, appears to have engaged in the purely mechanical exercise of searching within the *Smith reference* to see if it could find either the literal phrase “threshold value” or whatever the Board might have preconceived the claimed “threshold value” to be. A8 (“Smith does not appear to disclose a ‘threshold value’ at all.”). On that basis alone, the Board summarily concluded: “While Smith discloses stopping an audio signal responsive to receiving a phone call, Appellant does not demonstrate that Smith also discloses the signal from the phone call ‘reaching a threshold value.’” *Id.*

This was reversible error. Because the Board failed to construe the term *as it is used in the patent claims*, it failed to appreciate the relevance of the disclosures in Smith, as discussed below, and failed to consider whether Smith discloses a “threshold value” in the same sense as that term is used in the ’948 Patent, albeit in different words. Accordingly, the Board’s decision should be

reversed and remanded with directions to construe the term “threshold value” and to apply the term, upon its proper construction, to the anticipatory Smith reference. *See Zenith Elecs. Corp. v. PDI Commc’n Sys., Inc.*, 522 F.3d 1348, 1363-64 (Fed. Cir. 2008).

2. The Board erred in failing to apply the broadest reasonable construction of “threshold value” that includes any non-zero value sufficient for the second audio signal to be received

Even if this Court finds that the Board did not err by failing to construe the term “threshold value,” the Board still erred because it failed to apply the broadest reasonable construction to this claim element. In its opinion, the Board appears to have distinguished between the act of *receiving* a phone call and the “threshold value” that has to be reached by the signal from the two-way communication device: “In other words, Smith discloses a user *receiving a phone call* while listening to an audio signal (i.e. music) via an adapter, the adapter stopping the music in response to *receiving the phone call.*” A8 (emphases added). The Board went on to conclude that “Appellant does not demonstrate that Smith also discloses *the signal from the phone call* ‘reaching a threshold value.’” *Id.* (emphasis added). “Instead, Smith merely discloses interrupting music *when a phone call is received* (at any level).” A14 (emphasis added).

Thus, the Board’s reasoning appears to rest on an assumption that the “threshold value” in the ’948 Patent must be reached by the *received* signal. The

significance is that a *received* signal has by definition already reached a value at which it can be received, meaning that under this interpretation the claimed “threshold value” is some value that is greater than the value at which the presence of the received signal can be recognized. The Board, however, failed to consider what that value might be and failed to cite to any support in the specification for the assumption that the “threshold value” must be greater than the value at which the second audio signal is initially received.

Indeed, the Board’s assumption is contrary to the language of the claims, which defines that it is the second audio signal that has to reach the threshold value. The claims define the second audio signal simply as the signal *from* the two-way communication device. There is no language in the claims that requires a determination of the threshold value *after* the second audio signal is received by the portable apparatus. Indeed there is no language anywhere in the ’948 Patent that even discloses this.

Furthermore, the broadest reasonable construction of “threshold value” must be understood in light of the disclosures in the specification. *See In re ICON*, 496 F.3d at 1379. Here, a proper construction of the term must be broad enough to include *any* non-zero value sufficient for the second audio signal to be received, because otherwise the claims do not solve the problem that the ’948 Patent explicitly sets out to address. *See In re Avid Identification Sys., Inc.*, 504

Fed. App'x 885 (Fed. Cir. Jan. 8, 2013) (unpublished) (affirming broad construction by PTO when “there was no consistent, explicit definition in the specification, and there were varied uses of the phrase in the patent”).

Thus, the Board erred by holding, if only implicitly, that the “threshold value” should be construed as requiring some arbitrary (and unspecified) minimum value greater than the value that has to be attained for a signal to be received, thereby failing to give the term “threshold value” its broadest reasonable construction.

3. The Smith reference discloses a “threshold value” under the broadest reasonable construction and under the Board’s flawed reasoning

The Board found that the Smith reference “does not appear to disclose ‘a threshold value’ at all,” A8, but this conclusion is wrong when the broadest reasonable construction of “threshold value” is applied. The conclusion is also wrong under the Board’s own, flawed reasoning.

Smith discloses that the wireless communication adapter provides priority to the audio signal from the phone by commanding the other audio device to pause when the wireless communication adapter determines that an incoming call is being routed to it. A1179. Since the wireless communication adapter recognizes that a call is incoming, the audio signal from the phone must necessarily have had some non-zero value at which it could be received. Thus,

under the broadest reasonable construction of the term “threshold value,” this scenario in the Smith reference discloses the “threshold value” limitation recited in claims 1 and 4 of the ’948 Patent.

The Smith reference discloses a further example of a threshold value in a general description of portable applications of the wireless communication adapter. The telephone scenario discussed in the preceding paragraph is one such portable application.⁴ In this general description, Smith provides that “the wireless communication adapter or module 2a [can] be used in portable application as long as the user 7 is within ***good signal range*** of the remote unit to allow no-corrupt and error free reception/transmission of the wireless data.” A1178 (emphasis added). By explaining that a “good signal range” is one that will allow reception by the wireless communication adapter without corruption and errors, Smith contemplates that a signal can be received, albeit corrupt and full of errors, if the signal range is not good. Smith therefore anticipates the use of a threshold value that may be higher than the value at which a telephone call (or audio signal) is initially

⁴ Skullcandy argued before the PTO that the different examples disclosed in Smith could not be combined for anticipation. A151. Smith, though, never discloses that any of these embodiments are incompatible with other embodiments. To the contrary, the use of such multiple embodiments is fully consistent with the fundamental purpose of Smith’s invention: to allow users to upgrade their systems in stages so that they could quickly and conveniently upgrade legacy equipment to operate with new, wireless-enabled equipment. A1173.

received, in order to distinguish signals that have good signal range (*i.e.*, strong signals) from those that do not (*i.e.*, weak signals) so as to avoid corrupt and error-prone reception. Thus, Smith anticipates a signal “reaching a threshold value” even under the Board’s flawed reasoning.⁵

Because the Smith reference discloses a threshold value under both the broadest reasonable construction of that term and under the Board’s flawed reasoning, the Board’s finding to the contrary is not supported by substantial evidence and should be reversed. Moreover, because the Board refused to enter the rejections of every claim of the ’948 Patent solely on this basis, CSR respectfully requests that this Court reverse the Board’s decision in its entirety and

⁵ The Court may take judicial notice of certain basic scientific principles, not subject to reasonable dispute, that are applicable here. *See Fed. R. Evid. 201(b); see also Olin Mathieson Chem. Corp. v. United States*, 179 Ct. Cl. 368, 372 n.2 (Ct. Cl. 1967) (approving judicial notice by appellate court); *Hines on Behalf of Sevier v. Sec’y of Dep’t of Health & Human Servs.*, 940 F.2d 1518, 1526 (Fed. Cir. 1991) (allowing judicial notice of explanation in textbook). It is a basic principle of wireless communications that “signals get weaker the farther you get from the source.” A3473. Similarly, it is axiomatic that, before any wireless signal can be processed, it must be “received” at a certain level of signal strength: “Just as your ears and brain require a minimum volume and clarity to be able to discern what is being said, a radio receiver also requires a minimum power level of received signal in order to discern and recreate the transmitted modulating wave.” A3472. As the signal strength improves, errors and corruption in the “demodulation” or processing of the signal are reduced. *Id.* The Board’s *sua sponte* reading of Smith appears to have been made without the benefit of these basic principles.

find all claims of the '948 Patent invalid as anticipated (claims 1 and 4) or obvious (claims 2-3, 5-6).⁶

4. The Board erred in not considering whether the dependent claims are obvious

CSR proposed rejections of obviousness for each of the dependent claims 2-3 and 5-6 as evidenced by Smith and Wingate,⁷ a prior art patent that discloses the ability to listen to two audio inputs at the same time, mixing the inputs by adjusting the volume level on one or both of them. A710-12; A1107-08. Under obviousness, claims are examined in light of the abilities of one having ordinary skill in the art. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). In its decision, however, the Board never addressed these obviousness arguments, resting its entire decision on the alleged lack of a “threshold value” being disclosed in Smith. A8. This decision constitutes reversible error because the legal standard for obviousness differs from that for anticipation such that an obviousness analysis would have invalidated the dependent claims. In this case, even though Smith does not use the literal phrase “threshold value,” one having ordinary skill in the art

⁶ The Board based its refusal to enter the obviousness rejections of claims 2-3 and 5-6 solely on the basis that neither Smith nor the other cited prior art disclosed the “threshold value” element. As shown above, Smith does in fact disclose a threshold value; thus, the Board’s refusal to enter the obviousness rejections of the dependent claims was in error.

⁷ U.S. Patent No. 6,006,115. A1152-60.

would nonetheless have understood Smith as disclosing a threshold value at or above which the audio signal from the telephone would interrupt the audio signal from the hi-fi equipment.

Moreover, although Smith does not disclose a specific implementation for discriminating between incoming signals, one having ordinary skill in the art would have understood that the various wireless protocols disclosed in Smith, such as Bluetooth, would provide this functionality.⁸ Accordingly, common sense would have told one having ordinary skill in the art that the disclosures in the prior art would have included a threshold value under any rational interpretation of that term, and it was reversible error for the Board not to consider this argument.

5. Claims 4-6 are invalid for failing the written description requirement

Claims 4-6 in the '948 Patent, which were added in the course of reexamination, A981-82, fail the written description requirement because the patent specification provides no support for the additional language in independent claim 4 as compared to claim 1. In particular, this added language requires that the coupling device be "portable with the audio and two-way communication devices by the same user during use of the coupling device." The specification of the '948

⁸ A129.

Patent fails to convey to one having ordinary skill in the art that this limitation is present in the patent disclosure.

Skullcandy asserts that claim 4 covers the wireless embodiment of the invention and specifically identifies figure 8 as depicting the claimed subject matter. A299-300. Figure 8, however, merely shows the various components of a wireless embodiment laid out diagrammatically but provides no specific disclosure about how the various components in Figure 8 are arranged in use. A67, Fig. 8; A70, col. 6:5-28. Moreover, nothing within the specification suggests that the audio device and two-way communication device should be carried with the user when the apparatus is in operation in the wireless configuration. In fact, one having ordinary skill would likely consider that the audio and two-way communication devices would be located near, but not on, the person because the wireless embodiment could be used at any distance within range.

Skullcandy has argued that this missing limitation can be found in Figures 1 and 2. But these figures describe the *wired* embodiment of the invention, and a requirement imposed on the wired embodiment due to the physical necessity of having all components wired together can hardly be said to be part of the wireless embodiment. To the contrary, as noted above, it seems natural that the *wireless* embodiment would operate differently in this respect. For these reasons,

the Court should reverse the Board's decision on invalidity of claims 4-6 regarding the written description requirement and find these claims invalid under § 112, ¶ 1.

C. The Board's Findings that Smith Does Not Anticipate Claim 5 of the '090 Patent Should Be Reversed

Of the 74 claims presented in the '090 Patent reexamination, the Board allowed only one, claim 5. Claim 5 depends from claim 1, which the Board found to be anticipated by the Smith reference, but adds a limitation that “at least one of the first or second electrical connectors is physically detached from the coupling device and wirelessly communicates with the coupling device.” A85-86, cols. 6:66-7:2. The Board’s decision to allow claim 5, however, is not based on substantial evidence because the Board considered the wrong structure in Smith and, in the process, ignored relevant disclosures in that reference. Accordingly, CSR respectfully requests that this Court reverse the Board’s finding for claim 5 and find instead that claim 5 is invalid as anticipated by Smith.

1. The Board's findings for claim 5 of the '090 Patent lack substantial evidence because the Board analyzed the wrong structure in Smith

In reaching its conclusion, the Board focused on the wrong structure in Smith. In particular, the Board stated that the connector in Smith “appears to be connected to (and not detached from) the *adapter or module*.” A33 (emphasis added). Claim 5, however, requires that the connector be detached from the *coupling device*. Therefore, the Board’s conclusion that the connector is attached

to the adapter or module is beside the point for purposes of analyzing anticipation with respect to claim 5.

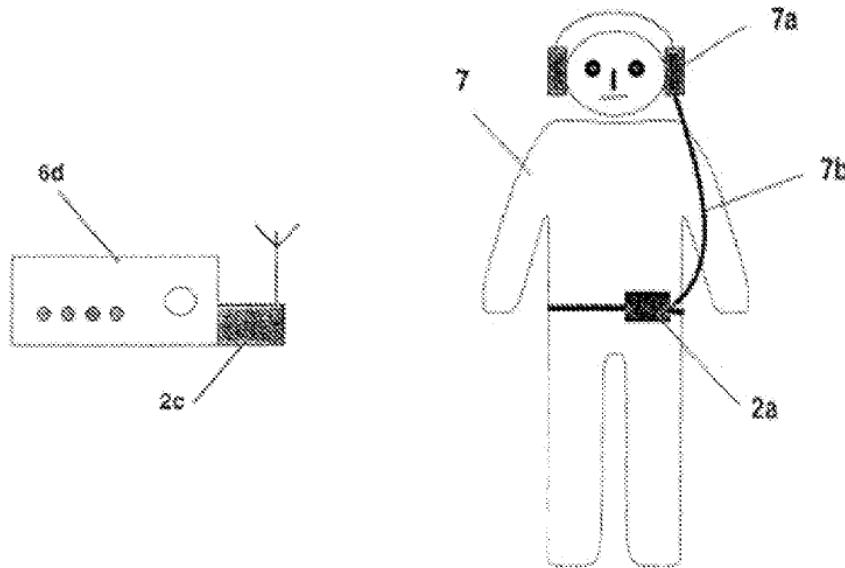
As noted below, the relevant coupling device disclosed in Smith is the device formed by the wireless communication adapters for the headphones and audio device. *See* Section V.C.3. As further explained, the wireless communication adapter connected to the two-way communication device does not form part of, and is not physically connected to, the coupling device in Smith. *See id.* Because the Board focused on the wrong structure in Smith, its decision is not based on substantial evidence. *FLO Healthcare Solutions, LLC, v. Kappos*, 697 F.3d 1367, 1375 (Fed. Cir. 2012) (holding that anticipation determinations must be supported by substantial evidence).

2. The Board's conclusion also lacks substantial evidence because the disclosures in Smith contradict the Board's findings that this reference does not disclose a cell phone connected to a wireless communication adapter

The Board also based its decision upon the mistaken belief that Smith does not disclose a mobile phone that communicates through a wireless communication adapter. The disclosures in Smith, though, clearly contradict the Board's findings so that its conclusion cannot be based on substantial evidence.

As previously discussed, Smith discloses an embodiment in which a user wears legacy headphones that are connected to a wireless communication adapter and receive an audio signal from hi-fi equipment connected to a second

wireless communication adapter. A1178. The figures in Smith show that the legacy headphones and the hi-fi equipment connect to separate wireless communication adapters:

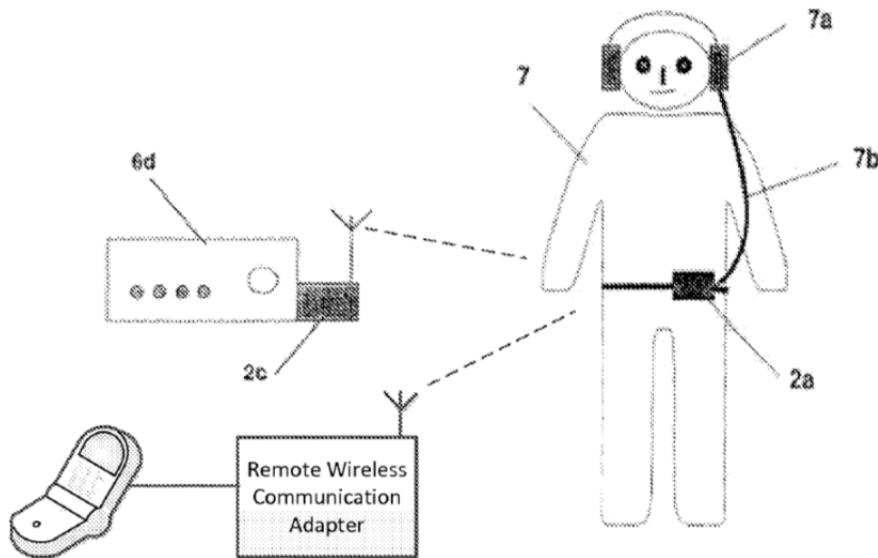


A1321. Each of these wireless communication adapters has a physical connector (element 1c) that connects to each device. A1178.

Smith discloses a further feature of the headset embodiment, which allows the user to receive incoming telephone calls from a mobile or land line phone. A1179. In this configuration, the music being played over the headphones can be stopped to allow the user to receive the incoming call. *Id.* Smith further discloses that the audio signal to be stopped can originate from the previously discussed hi-fi equipment, as the ability to re-start the incoming audio signal is said

to “allow the user 7 to use the remote hi-fidelity unit and control it from a remote site.” *Id.*

Smith also discloses that the phone can connect to its own wireless communication adapter to communicate with the headphones. Claim 14, for example, recites a wireless communication adapter, connected to a legacy headset, that “can also receive incoming phone calls . . . from mobile phone or land line connected phone which is connected [to] a remote wireless communication adapter or module.” A1187. In this configuration, Smith discloses the use of three separate wireless communication adapters—one for the headphones, one for the hi-fi equipment, and one for the phone—as shown in the following diagram (created using elements of the figures in Smith) that CSR presented to the Board:



A1323. This configuration plainly contradicts the Board's finding that Smith does not disclose "the cell phone and 'Remote Wireless Communication Adapter.'"'

A43-44.

After making its erroneous finding as to the actual disclosures in Smith, the Board declared that it "need not consider if [CSR]'s proposed cell phone and 'Remote Wireless Communication Adapter' anticipates the claimed feature." A44. Because the Smith reference clearly contradicts the finding upon which this conclusion was based, however, the Board's determination of no anticipation was not based on substantial evidence. Accordingly, CSR respectfully requests that the Board's holding of no anticipation be reversed.

3. The disclosures in Smith meet every element in claim 5 so that a finding of anticipation is appropriate

The three-adapter configuration discussed above also discloses each of the elements recited in claim 5 of the '090 patent, as CSR demonstrated to the Board. Accordingly, this Court should find that claim 5 is invalid as anticipated by Smith.

The three-adapter configuration in Smith discloses each of the elements of claim 1:⁹ the connector 1c of the wireless communication adapter 2c

⁹ Claim 1 recites, in relevant part (emphases added):

A portable apparatus for integrating a two-way communication device and an audio delivery device ... the apparatus comprising:

that connects to the hi-fi equipment 6d, A1179, satisfies the **first electrical connector** limitation, A2801; the second connector 1c of the Remote Wireless Communication Adapter that connects to the phone, A1186, claim 12, satisfies the **second electrical connector** limitation, A2801-02; and the headphones 7a satisfy the limitation of an **acoustic device** that converts an audio signal into an acoustic wave, A1178, A2805-06. CSR further showed that the combination of the **two physically separate** wireless communication adapters 2a, 2c connecting the audio device and the headphones meets the **coupling device** limitation. A1325, A2802-06.

The same three-adapter configuration also discloses the additional limitations of claim 5.¹⁰ In particular, connector 1c of the Remote Wireless Communication Adapter that connects to the mobile phone is **physically detached**

a **first electrical connector** configured to receive a first audio signal from a substantially arbitrarily selectable audio delivery device;
 a **second electrical connector** configured to receive a second audio signal from a substantially arbitrarily selectable two-way communication device;
 a **coupling device** independent from the audio and two-way communication devices ...; and
 an **acoustic device** adapted to convert the third audio signal to an acoustic wave having an audio range corresponding to a hearing range of a user;

wherein

the coupling device comprises at least **two physically separate devices**

¹⁰ Claim 5 adds the following limitation to claim 1 (emphasis added): wherein at least one of the first or second electrical connectors is **physically detached from the coupling device and wirelessly communicates with the coupling device**.

from the coupling device formed by the wireless adapters for the hi-fi equipment and the headphones. A1186-87, Claims 12 and 14. Further, connector 1c for the mobile phone **wirelessly communicates with the coupling device** through the Remote Wireless Communication Adapter. A1325. Thus, the connector 1c for the mobile phone provides an electrical connector that “is physically detached from the coupling device and wirelessly communicates with the coupling device” as recited in claim 5.

Accordingly, CSR respectfully requests that this Court reverse the Board and find claim 5 invalid as anticipated by Smith.

VI. CONCLUSION AND RELIEF SOUGHT

CSR respectfully requests that this Court reverse the Board and find all claims of the '948 Patent invalid as anticipated and/or obvious in light of Smith. In addition, CSR respectfully requests that this Court reverse the Board's decision affirming the Examiner in not finding claims 4-6 of the '948 Patent invalid under the written description requirement of § 112, ¶1. Alternatively, CSR respectfully requests that this Court reverse the Board with regard to the '948 Patent and remand so that the Board can provide and apply the broadest reasonable interpretation of the "threshold value" claim limitation.

Further, CSR respectfully requests that this Court reverse the Board and find claim 5 of the '090 Patent invalid as anticipated by Smith.

Dated: February 5, 2014

Respectfully submitted,

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ADDENDUM

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CSR PLC
Requester and Appellant

v.

SKULLCANDY, INC.
Patent Owner and Respondent

Appeal 2013-000114
Reexamination Control 95/001,305
Patent 7,187,948 B2
Technology Center 3900

Before HOWARD B. BLANKENSHIP, ROBERT E. NAPPI, and
STEPHEN C. SIU *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*

DECISION ON APPEAL

Appeal 2013-000114
Reexamination Control 95/001,305
Patent 7,187,948 B2

Third Party Requester/Appellant CSR plc appeals under 35 U.S.C. §§ 134(c) and 315(b) the Examiner's decision not to reject claims 1-6. We have jurisdiction under 35 U.S.C. §§ 134(c) and 315(b).

STATEMENT OF THE CASE

This proceeding arose from a request by CSR plc for an inter partes reexamination of U.S. Patent 7,187,948 B2, titled "Personal Portable Integrator for Music Player and Mobile Phone," and issued to Richard P. Alden on July 1, 2008 (the '948 patent). We heard oral arguments on January 23, 2013.

The '948 patent describes integration of services provided by a personal music player and a mobile phone (col. 1, ll. 20-23).

Claim 1 reads as follows:

1. A portable and wireless apparatus for wirelessly integrating a two-way communication device and an audio delivery device, wherein the portable and wireless apparatus is configured in size and shape to be portably carried in either a hand of a user or an article of clothing during use of the portable and wireless apparatus, the portable and wireless apparatus comprising:

means for wirelessly receiving a first audio signal from a substantially arbitrarily selectable audio delivery device;

means for wirelessly receiving a second audio signal from a substantially arbitrarily selectable two-way communication device;

a coupling device independent from the audio and two-way communication devices, wherein the second audio signal is characterized by a threshold value, the second audio signal is accorded priority relative to the first audio signal, and the second audio signal interrupts the first audio signal upon reaching the threshold value, the coupling device comprising said

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means for receiving said first and second audio signals, said coupling means further comprising:

means for transmitting a third audio signal comprising at least one of the first or second audio signals to an acoustic device adapted to convert the third acoustic wave to an audio range corresponding to a hearing range of a user.

Appellant appeals the Examiner's refusal to adopt the following proposed rejections:

- 1) claims 1 and 4 under 35 U.S.C. §§ 102(a) and 102(b) as anticipated by GB 2357663A ("Smith");
- 2) claims 2, 3, 5, and 6 under 35 U.S.C. § 103(a) as unpatentable over Smith and U.S. Patent No. 6,006,115 ("Wingate"); and
- 3) claims 4-6 under 35 U.S.C. § 112, first paragraph as failing the written description requirement.

ISSUE

Did the Examiner err in refusing to reject claims 1-6?

PRINCIPLES OF LAW

Under the written description requirement of 35 U.S.C. § 112, the disclosure of the application relied upon must reasonably convey to the artisan that, as of the filing date of the application, the inventor had possession of the later claimed subject matter. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991).

In rejecting claims under 35 U.S.C. § 102, "[a] single prior art reference that discloses, either expressly or inherently, each limitation of a

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claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citation omitted).

The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and (3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007).

ANALYSIS

Claims 4-6

Appellant argues that newly added claims 4-6 recite a coupling device that is “**portable with the audio and two-way communication devices by the same user during use of the coupling device**” but that such a limitation “was not previously contained in the ‘948 patent” (App. Br. 25).

Respondent argues that the Specification discloses this claimed feature. We agree with Respondent.

As Respondent points out, the Specification discloses an “audio device”¹ and a “two-way communication device”² in communication with a “coupling device”³ that can “route the signals . . to an acoustic device, such

¹ E.g., element 16, Fig. 2 or Fig. 8.

² E.g., element 18, Fig. 2 or Fig. 8.

³ E.g., element 28, Fig. 2 or element 28a (and element 28b), Fig. 8.

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as headphones.”⁴ The audio device and two-way communication device are both “portable” devices⁵ and both communicate⁶ with the coupling device using “wireless technology such as Bluetooth”⁷. In other words, the Specification discloses the disputed claim features of a portable audio device and a portable two-way communication device communicating wirelessly with a coupling device, the audio and two-way communication device being used by a user during use of the coupling device.

One of skill in the art would have also understood that a “portable” device is “portable” with a user during use since one of skill in the art would have understood that a “portable” device does not cease being portable when being used and that the coupling device transmitting signals to one acoustic device (e.g., headphones) as illustrated in Figs. 2 and 8 would be used by a “same user.”

Appellant argues that the Specification fails to disclose the disputed claim features because “Figs. 1 and 2 have nothing to do with the *wireless embodiment*” (App. Br. 26). However, as described above, the Specification explicitly discloses that both the audio device and the two-way communication device communicate with the coupling device via “wireless technology.” Appellant has not explained how devices communicating wirelessly “have nothing to do with” a wireless embodiment.

⁴ E.g., col. 3, ll. 66-67; see also, Figs. 2 and 8.

⁵ E.g., col. 3, l. 35 – a “mobile phone 18” and col. 3, ll. 36-37 – “a portable MP3 player or CD player.”

⁶ E.g., col. 3, ll. 47-51: “the connector 12 may . . . receive an audio signal . . . from the audio device 16 . . . [and] may receive an audio signal 15 from the communication device 18”

⁷ E.g., col. 3, ll. 56-57.

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Appellant also argues that claim 4 fails to provide a “further limitation on the coupling device” (App. Br. 29). Claim 4 recites a coupling device that not only receives the first and second audio signal but also is “portable with the audio and two-way communication devices by the same user during use of the coupling device.” As described above, the written description requirement requires that the disclosure of the application relied upon must reasonably convey to the artisan that the inventor had possession of the later claimed subject matter. *Vas-Cath Inc.*, 935 F.2d at 1563. Appellant has not demonstrated that the written description requirement also requires that an independent claim provide a “further limitation on the coupling device.”

In any event, even assuming that the written description requirement required that claim 4 (an independent claim) provide a “further limitation on the coupling device,” as Appellant appears to contend, we disagree with Appellant’s contention that claim 4 fails to provide a “further limitation on the coupling device” for at least the reasons set forth by the Examiner (RAN 9). For example, claim 4 recites the feature of being “portable with the audio and two-way communication devices by the same user during use of the coupling device,” which Appellant has not demonstrated to be recited in other claims.

The Examiner did not err in refusing to adopt the proposed rejection of claims 4-6 under 35 U.S.C. § 112, first paragraph as failing the written description requirement.

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Claims 1-6

Respondent argues that Smith fails to disclose that “the second audio signal interrupts the first audio signal upon reaching the threshold value” (Resp. Br. 9). Claim 1 recites a means for receiving a first audio signal and a means for receiving a second audio signal and that the second audio signal is characterized by a threshold value and interrupts the first audio signal upon reaching the threshold value. We agree with Respondent.

Smith discloses that “a user . . . could also receive incoming telephone calls from a phone . . . [the calls being] directed to the user’s portable wireless communication adapter or module and alter the user to the incoming call . . . [such that] the other signal (music in this example) would be stopped so the user and the person on the other end of the phone would not hear the music” (p. 8, ll. 1-10). In other words, Smith discloses a user receiving a phone call while listening to an audio signal (i.e., music) via an adapter, the adapter stopping the music in response to receiving the phone call. While Smith discloses stopping an audio signal responsive to receiving a phone call, Appellant does not demonstrate that Smith also discloses the signal from the phone call “reaching the threshold value.” In fact, Smith does not appear to disclose a “threshold value” at all.

Appellant does not adequately argue or demonstrate that Wingate provides this claim feature.

The Examiner did not err in refusing to adopt the proposed rejections of claims 1 and 4 under 35 U.S.C. §§ 102(a) and 102(b) as anticipated by Smith or claims 2, 3, 5, and 6 under 35 U.S.C. § 103(a) as unpatentable over Smith and Wingate.

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CONCLUSION

The Examiner did not err in refusing to reject claims 1-6.

DECISION

We affirm the Examiner's decision not to adopt the rejections of claims 1 and 4 under 35 U.S.C. §§ 102(a) and 102(b) as anticipated by Smith; claims 2, 3, 5, and 6 under 35 U.S.C. § 103(a) as unpatentable over Smith and Wingate; and claims 4-6 under 35 U.S.C. § 112, first paragraph.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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Appeal 2013-000114
Reexamination Control 95/001,305
Patent 7,187,948 B2

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Workman Nydegger			FOSTER, ROLAND G	
60 East South Temple			ART UNIT	PAPER NUMBER
Suite 1000				3992
Salt Lake City, UT 84111				
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The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CSR PLC,
Requester

v.

SKULLCANDY, INC.
Patent Owner

Appeal 2013-000114
Reexamination Control 95/001,305
Patent 7,187,948 B2
Technology Center 3900

Before HOWARD B. BLANKENSHIP, ROBERT E. NAPPI, and
STEPHEN C. SIU, *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*.

DECISION ON REQUEST FOR REHEARING

Requester submits a request for rehearing under 37 C.F.R. § 41.79(b) (dated March 21, 2013) from the Opinion of the Board of Patent Trial and Appeal Board, dated February 21, 2013 (“Decision”).

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In the Decision, the Board affirmed the Examiner's refusal to adopt the proposed rejection of claims 1 and 4 as anticipated by Smith; claims 2, 3, 5, and 6 as unpatentable over Smith and Wingate; and claims 4-6 under 35 U.S.C. 112, first paragraph. (*see* Decision 8).

A "request for rehearing must state with particularity the points believed to have been misapprehend or overlooked in rendering the Board's opinion reflecting its decision." 37 C.F.R. § 41.79(b)(1).

Claim 1 recites a second audio signal interrupts a first audio signal upon reaching the threshold value. We stated in the Decision that Smith fails to disclose this limitation (Decision 7). Requester argues that "[t]he Board ascribed an unreasonably narrow interpretation to threshold value" (Req. Reh'r g. 2). We disagree for at least the previously stated reasons (*see* e.g., Decision 7). While Requester apparently disagrees with our Decision, Requester does not point out with particularity the specific points that were misapprehended or overlooked.

Requester also argues that "[t]he Board apparently overlooked that the Examiner explicitly agreed with the Appellant's stated position" (Req. Reh'r g 3). We need not address whether the Examiner "explicitly agreed with Appellant's stated position" as Requester asserts because Requester still has not persuasively demonstrated that Smith, in fact, discloses a second audio signal that interrupts a first audio signal upon the second audio signal reaching the specified threshold value.

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Requester also argues that “[t]he Board overlooked the plain disclosure in Smith of discrimination based on signal strength” (Req. Reh’g. 4). Requester cites one passage from the Smith reference describing a user utilizing a device “within good signal range” and another passage from the Smith reference that describes a module that receives a phone call from a mobile phone while in a car that is parked near a house (Req. Reh’g 4). We are not persuaded by Requester’s argument because we do not agree with Requester that a second audio signal interrupting a first audio signal upon reaching the threshold value, as recited in claim 1, is the same as Smith’s disclosure of operating a device “within good signal range” and receiving a phone call while in a car that is parked near a house.

Requester argues that “[t]he Board failed to address obviousness of the dependent claims” (Req. Reh’g 6). We disagree that we misapprehended or overlooked particular points in this regard because such points were not previously raised. In any event, as stated in the Decision, Smith discloses a user receiving a phone call while listening to an audio signal, such as music, and stopping the audio signal responsive to receiving a phone call (Decision 7). We stated that Smith does not disclose the phone call reaching a threshold value and interrupting the audio signal (i.e., music) when the second audio signal (i.e., phone call) reaches the threshold value. Instead, Smith merely discloses interrupting music when a phone call is received (at any level). Requester does not indicate that Wingate discloses this feature or how it would have been obvious to one of ordinary skill in the art receiving a

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phone call that does not “reach” a “threshold value” (as in Smith) to have interrupted the audio signal only after the phone call reaches a specified threshold value.

Requester now inquires “would it have been obvious through pure common sense to one of ordinary skill in the . . . art . . . that the music signal would only have to be interrupted when an incoming phone signal reached a threshold . . .?” (Req. Reh’g 6) and posits that “you do not have to interrupt the music if the phone signal is so weak or so corrupted or ill-formed . . .” (*id.*) We do not find that it would have been obvious to one of ordinary skill in the art given that Smith does not disclose that a phone call is even associated with a specific threshold value, as previously discussed.

We have considered Appellant’s arguments but find no points that we have misapprehended or overlooked. Therefore, the Request for Rehearing is DENIED.

DENIED

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
95/001,369	06/03/2010	7395090	21716-0013RX2	5862	
22913	7590	02/20/2013	EXAMINER		
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CSR PLC
Requester and Appellant

v.

SKULLCANDY, INC.
Patent Owner and Respondent

Appeal 2012-012690
Reexamination Control 95/001,369
Patent 7,395,090 B2
Technology Center 3900

Before HOWARD B. BLANKENSHIP, ROBERT E. NAPPI, and
STEPHEN C. SIU *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*

DECISION ON APPEAL

Appeal 2012-012690
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Third Party Requester/Appellant CSR plc appeals under 35 U.S.C. §§ 134(c) and 315(b) the Examiner's decision not to reject claims 1-74. We have jurisdiction under 35 U.S.C. §§ 134(c) and 315(b).

STATEMENT OF THE CASE

This proceeding arose from a request by CSR plc for an inter partes reexamination of U.S. Patent 7,395,090 B2, titled “Personal Portable Integrator for Music Player and Mobile Phone,” and issued to Richard P. Alden on July 1, 2008 (the ‘090 patent). We heard oral arguments on January 23, 2013.

The ‘090 patent describes integration of services provided by a personal music player and a mobile phone (col. 1, ll. 20-23).

Claim 1 reads as follows:

1. A portable apparatus for integrating a two-way communication device and an audio delivery device, wherein the portable apparatus is configured in size and shape to be portably carried in either a hand of a user or an article of clothing during use of the portable apparatus, the apparatus comprising:

a first electrical connector configured to receive a first audio signal from a substantially arbitrarily selectable audio delivery device;

a second electrical connector configured to receive a second audio signal from a substantially arbitrarily selectable two-way communication device;

a coupling device independent from the audio and two-way communication devices, the coupling device connected to receive the first and second audio signals, and to transmit a third audio signal comprising at least one of the first or second audio signals; and

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an acoustic device adapted to convert the third audio signal to an acoustic wave having an audio range corresponding to a hearing range of a user;

wherein:

the coupling device comprises at least two physically separate devices; and

the at least two physically separate devices comprise means for enabling wireless communication between the at least two physically separate devices.

Appellant appeals the Examiner's refusal to adopt the proposed rejections of claims 1, 2, 4, 5, 7-10, 17, 18, 20, 22, 24, 25, 27, 29, 31-33, 35, 59-66, and 71-74 under 35 U.S.C. §§ 102(a) and 102(b) as anticipated by GB 2357663A ("Smith"); claim 23 under 35 U.S.C. § 103(a) as unpatentable over Smith; claims 6, 11-14, 21, 26, 28, 34, 36-38, 40-46, and 49-58 under 35 U.S.C. § 103(a) as unpatentable over Smith and U.S. Patent No. 6,006,115 ("Wingate"); claims 15 and 47 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, and GB 2296157A ("TCC"); claims 16, 30, and 48 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, and U.S. Patent No. 4,882,745 ("Silver"); claim 19 under 35 U.S.C. § 103(a) as unpatentable over Smith and EP 1068997 A2 ("Ford"); claim 3 under 35 U.S.C. § 103(a) as unpatentable over Smith and WO 00/70779 ("Lee"); claim 39 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, and Lee; claims 59-70 under 35 U.S.C. § 102(b) as anticipated by Wingate; claims 59-66 and 71-74 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,873,862 B2 ("Reshefsky"); claims 67-70 under 35 U.S.C. § 103(a) as unpatentable over Ban and one of Smith, Wingate, or Reshefsky; claims 59-74 under 35 U.S.C. § 103(a) as unpatentable over one of Smith,

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Wingate, and/or Reshefsky and one of U.S. Patent No. 6,985,592 B1 (“Ban”), EP 1176783 A2 (“Samsung”) and/or D.M. Bakker and Diane McMichael Gilster, “Bluetooth End to End,” M&T Books, 2002 (“Bakker”); and claims 59-74 under 35 U.S.C. § 112, first paragraph as lacking written description support in the original specification.

ISSUE

Did the Examiner err in refusing to reject claims 1-74?

PRINCIPLES OF LAW

Under the written description requirement of 35 U.S.C. § 112, the disclosure of the application relied upon must reasonably convey to the artisan that, as of the filing date of the application, the inventor had possession of the later claimed subject matter. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991).

In rejecting claims under 35 U.S.C. § 102, “[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citation omitted).

The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and (3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

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“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”
KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 416 (2007).

ANALYSIS

Claims 59-74

Requester argues that the Specification fails to disclose the coupling device being “portable with the audio and two-way communication devices by the same user during use of the coupling device” (App. Br. 33). Claim 59, for example, recites the coupling device is portable with the audio delivery device and the two-way communication device by the same user during use of the coupling device. However, we agree with the Examiner that the Specification discloses this claimed feature for at least the reasons set forth by the Examiner (RAN 18-19).

For example, the Specification discloses an “audio device”¹ and a “two-way communication device”² in communication with a “coupling device”³ that can “route the signals . . to an acoustic device, such as headphones.”⁴ The audio device and two-way communication device are both “portable” devices⁵ and both communicate⁶ with the coupling device

¹ E.g., element 16, Fig. 2 or Fig. 8.

² E.g., element 18, Fig. 2 or Fig. 8.

³ E.g., element 28, Fig. 1 or element 28a (and element 28b), Fig. 8.

⁴ E.g., col. 4, ll. 1-2; see also, Figs. 2 and 8.

⁵ E.g., col. 3, l. 37 – a “mobile phone 18” and col. 3, ll. 38-39 – “a portable MP3 player or CD player.”

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using “wireless technology such as Bluetooth”⁷. In other words, the Specification discloses the disputed claim features of a portable audio device and a portable two-way communication device communicating wirelessly with a coupling device, the audio and two-way communication device being used by a user during use of the coupling device.

One of skill in the art would have also understood that a “portable” device is “portable” with a user during use since one of skill in the art would have understood that a “portable” device does not cease being portable when being used and that the coupling device transmitting signals to one acoustic device (e.g., headphones) as illustrated in Figs. 2 and 8 would be used by a “same user.”

Requester also argues that claims 59, 60, and 62 (and, presumably, claims 61 and 63-74) each recites only features that “cannot properly be accorded patentable weight” (p. 38). It is unclear what statutory ground of rejection Requester proposes for claims 59, 60 and 62 (and, presumably claims 61 and 63-74) since Requester has not stated a specific statutory ground of rejection associated with these arguments.

Since Requester provides these arguments immediately following arguments pertaining to the proposed rejection under 35 U.S.C. § 112, first paragraph as lacking written description, one possibility is that Requester proposes claims 59, 60, and 62 (and claims 61 and 63-74) should be rejected as unpatentable under 35 U.S.C. § 112, first paragraph as lacking written

⁶ E.g., col. 3, ll. 49-53: “the connector 12 may . . . receive an audio signal . . . from the audio device 16 . . . [and] may receive an audio signal 15 from the communication device 18”

⁷ E.g., col. 3, ll. 58-59.

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description because claims 59, 60, and 62 allegedly fail to recite features that can be accorded patentable weight. However, even assuming that claims 59, 60, and 62 recite features that cannot be accorded patentable weight, Requester has not demonstrated that reciting features that cannot be accorded patentable weight would indicate a lack of written description in the Specification under 35 U.S.C. § 112, first paragraph.

Even assuming that a claim that recites features not accorded patentable weight would indicate that the claim lacks written description (or should be rejected under some other unspecified ground), we do not agree with Requester that claims 59, 60, and 62 recite only features that cannot be accorded patentable weight for at least the reasons set forth by the Examiner (see, e.g., RAN 19) and Patent Owner (see, e.g., Resp. Br. 14-15). For example, claim 59, which depends from claim 1, for example, recites the coupling device is portable with the audio delivery device and the two-way communication device by the same user during use of the coupling device. Even assuming Requester's statement to be true that "the audio delivery and communication devices simply are not part of that [claimed] apparatus" (p. 36), we note that claim 59 recites specific features of the "coupling device" (i.e., being portable by the same user during use) as opposed to features only associated with either the "audio delivery device" or the "communication device." Claims 60 and 62 recite similar features as claim 59.

Claims 61 and 63-74 each recite additional features that Requester does not demonstrate or assert lack written description in the Specification and/or are all features that "cannot be accorded patentable weight."

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Claim 1

The Examiner does not adopt the proposed rejection of claim 1 as anticipated by Smith (Right of Appeal Notice (“RAN”) 14-15). Claim 1 recites a coupling device that comprises at least two physically separate devices that comprise means for enabling wireless communication between the physically separate devices and audio and two-way communication devices that are independent from the coupling device.

Smith discloses a “portable version” (p. 8, l. 1) of a “wireless communication adapter or module 2” (p. 6, l. 7; Figs 4-6) that contains a “connector 1c” (p. 6, l. 16; Fig. 4) through which the adapter or module “can be connected to a set of legacy headphones” (p. 7, ll. 21-22; Figs 4-5), can “receive incoming telephone calls from a [mobile] phone” (p. 8, ll. 3-4), and can connect to “several legacy units” (p. 8, ll. 18; Fig. 6) through “several connectors 1c” (p. 8, l. 17; Fig. 4), the “several legacy units” including, for example, a “portable compact disc player 6a, or portable mini disc player 6b, or portable DVD player . . .” (p. 8, ll. 27-28; Fig. 6).

Smith also discloses that the wireless communication adapter or module 2 “can also interface to [a] home hi-fidelity unit 6d or 6e” (p. 8, ll. 32-33; Fig. 6) wirelessly (see, e.g., p. 7, ll. 25-26 – “legacy equipment 6d with a wireless communication adapter or module 2c attached so it could communicate and transfer the signals to the user wireless communication adapter or module”; Fig. 6).

In other words, Smith discloses a portable adapter/module that receives signals from “several legacy units” (e.g., audio delivery devices such as a compact disc player and/or a two-way communication device such

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as a mobile phone) and communicates a signal wirelessly with a remote module, or portion of the adapter/module (i.e., a communication adapter or module 2c attached to legacy equipment 6d). We agree with the Requester that Smith discloses the features recited in claim 1.

The Examiner states that “the coupling device [in Smith] would not be ‘independent’ from the audio and two-way (mobile telephone) devices themselves, as required by the claims” (RAN 14). Claim 1 recites that the “coupling device” is “independent from the audio and two-way communication devices.” The Examiner presumably equates the portable compact disc player of Smith, for example, with the “audio delivery device” recited in claim 1 and the mobile telephone of Smith with the “two-way communication device” recited in claim 1. Even assuming the Examiner’s assumptions to be correct, while the mobile telephone and compact disc player of Smith may be connected to the adapter, the Examiner has not demonstrated that the phone and compact disc player are dependent on the adapter. For example, one of skill in the art would have understood that both the phone and the compact disc player of Smith would be individually fully operational (i.e., the compact disc player would still be able to play compact discs and the phone would still be able to enable two-way communication for a user) whether the adapter of Smith was connected or not. We therefore do not agree with the Examiner that the phone and compact disc player of Smith are dependent (i.e., not independent) on the adapter.

Patent Owner argues that Smith fails to disclose an apparatus that is “portable” (Appeal Brief for Respondent-Patentee, filed March 6, 2012

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(“Resp. Br.”), p. 10). We disagree with Patent Owner at least because Smith explicitly discloses the adapter/module to be “portable” – e.g., Smith discloses a “portable version” (p. 8, l. 1) of a “wireless communication adapter or module 2” (p. 6, l. 7; Figs 4-6).

While Patent Owner argues that Smith discloses the “home hi-fidelity unit” as being “non portable” (Resp. Br. 10, citing Smith, p. 7, ¶ 4; p. 8, ¶ 2; and p. 3, ¶ 7), Patent Owner does not indicate an explicit definition of the term “portable” in the Specification. Utilizing a plain and customary definition, one of ordinary skill in the art would have understood the term “portable” to indicate that the component was capable of being transported. Since the hi-fidelity unit of Smith is a “home” hi-fidelity unit, the hi-fidelity unit must have been transported into the home. As such the hi-fidelity unit of Smith is capable of being transported and it therefore “portable.”

Even assuming the “hi-fidelity unit” of Smith is not “portable” as Patent Owner asserts, Patent Owner has not sufficiently demonstrated that the adapter/module of Smith is also not portable (note that claim 1 recites a “portable apparatus” but does not require a “portable hi-fidelity unit”). In fact, as described above, Smith explicitly discloses that the adapter/module is portable.

Patent Owner also argues that Smith fails to disclose “a substantially arbitrarily selectable two-way communication device” because the adapter is not disclosed by Smith as being ‘capable of working with any one of a number of phones’ or permitting “the user to arbitrarily select between . . . phones” (Resp. Br. 10). We disagree with Patent Owner.

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Smith discloses that the adapter/module contains a “connector 1c” (see, e.g., p. 6, l. 16) that may “be changed to that required to interface to the desired legacy equipment” (p. 6, ll. 20-21). Hence, the adapter/module may be changed to accommodate any type of equipment or device to communicate with the equipment or device (by, for example, modifying the connector 1c to a corresponding device). Smith does not disclose any specific limitations in modifying the interface to accommodate different devices or which devices may communicate with the adapter/module – e.g., any “desired” legacy equipment may interface with the adapter/module, as described above.

Patent Owner does not provide additional arguments in support of claims 3, 4, 6, 7-11, 14-21, and 23, or arguments with respect to Wingate, Lee, TCC, Silver, or Ford.

Claim 25

The Examiner does not adopt the proposed rejection of claim 25 as anticipated by Smith. The Examiner states that Smith fails to disclose that the portable apparatus communicates at least two of the first, second, and third audio signals wirelessly because “the hi-fidelity amplifier must read upon the claimed audio delivery device” but the “hi-fidelity amplifier” of Smith is “non-portable” (RAN 17). Patent Owner concurs with the Examiner (Resp. Br. 11-12).

We disagree with the Examiner and Patent Owner’s contention that Smith fails to disclose a “portable” device for reasons already discussed.

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Patent Owner argues that Smith fails to disclose a “substantially arbitrarily selectable” device (Resp. Br. 12). We disagree with Patent Owner for at least the reasons previously discussed.

Patent Owner argues that “there is no disclosure [in Smith] that the adapter/module 2a receives the alleged ‘second signal’ from a telephone wirelessly” (Resp. Br. 12). As described above, Smith discloses an adapter/module (e.g., Fig. 4) in communication connected with legacy equipment (e.g., headphones (Fig. 5), compact disc player, mini disc player, etc.), a mobile telephone, and/or a hi-fidelity amplifier (e.g., component 6d or 6e in Fig. 6). Smith also discloses that the devices “communicate as a group” via “Bluetooth [that] allows a so called piconet to have . . . units communicating with each other” (p. 7, last paragraph). One of ordinary skill in the art would have understood that devices that communicate in a piconet via Bluetooth would be communicating “wirelessly” since one of ordinary skill in the art would have understood “Bluetooth” to be a brand name for a type of wireless network technology and because Smith confirms that Bluetooth is, in fact, a wireless standard explicitly disclosing “wireless standards, such as Bluetooth . . .” (p. 2, l. 8).

Patent Owner does not provide additional arguments in support of claims 26, 28, 30, 32, or 35, which depend from claim 25, or arguments with respect to Wingate or Silver.

Claims 36-58, 62, 66, and 70

The Examiner does not adopt the proposed rejection of claims 36-38, 40-46, and 49-58 as obvious over the combination of Smith and Wingate;

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claim 39 as obvious over the combination of Smith, Wingate, and Lee; claim 47 as obvious over the combination of Smith, Wingate, and TCC; claim 48 as obvious over the combination of Smith, Wingate, and Silver; claims 62 and 66 as anticipated by Smith; or claim 70 as obvious over the combination of Smith, Wingate, Reshefsky, and Ban.

Patent Owner argues that the combination of Smith and Wingate fails to disclose or suggest “a substantially arbitrarily selectable two-way communication device” and does not disclose or suggest that “adapter/module 2a receives a signal from the phone ‘wirelessly’” (Resp. Br. 13). We are not persuaded by Patent Owner’s arguments for at least the reasons stated above.

Claims 59-74

The Examiner does not adopt the proposed rejection of claims 59-66 as anticipated by Smith or the proposed rejection of claims 67-64 as obvious over at least one of Smith, Wingate, and/or Reshefsky in combination with at least one of Ban, Samsung, and Bakker.

Patent Owner argues that Smith fails to disclose “a portable audio delivery device” (Resp. Br. 13) because Smith discloses “home hi-fidelity unit[s]” that “are ‘non portable’” (*id.*) and the phone embodiment of Smith “is also part of a ‘non portable’ system” (*id.* at 14). We disagree with Patent Owner. As stated above, Smith discloses a portable adapter/module that receives signals from “several legacy units” (e.g., audio delivery devices such as a compact disc player and/or a two-way communication device such as a mobile phone). Smith discloses that the compact disc player, for

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example, is a “portable compact disc player.” One of ordinary skill in the art would have understood a “portable compact disc player,” for example, to be “portable” since the compact disc player is explicitly disclosed as being “portable.” In addition, one of ordinary skill in the art would have understood that a compact disc player delivers audio signals to a user and is therefore an “audio delivery device.”

Patent Owner also argues that Smith fails to disclose that “the coupling device [is] ‘portable with the audio and two-way communication devices *by the same user during use of the coupling device*’” (Resp. Br. 14). However, since Smith discloses that the audio delivery device is portable (e.g., a “portable compact disc player” or “portable mini disc player” or “portable radio receiver”) and the adapter module in communication with the portable audio delivery device is also portable (e.g., a “portable version” (p. 8, l. 1) of a “wireless communication adapter or module 2” (p. 6, l. 7; Figs 4-6)), one of ordinary skill in the art would have understood that the different portable devices in communication with each other would be portable by the same user during use. Patent Owner does not sufficiently demonstrate or assert that two portable devices would each somehow become non-portable when used at the same time.

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Claims 2, 33, 34, 38, and 63-66

The Examiner does not adopt the proposed rejection of claims 2, 33, and 63-66 as anticipated by Smith and claims 34 and 38 as obvious over the combination of Smith and Wingate.

Patent Owner argues that Smith discloses ‘automatically switching between signals’ but fails to disclose “switching between the first and second audio signals, *so that a user has the ability to choose the signal*” (Resp. Br. 15). Claims 2, 38, 63, and 66 recite “a first switch . . . to selectively switch between the first and second audio signals” and claims 33, 34, 64, and 65 recite “selectively switching between the first and second audio signals.” We note that none of claims 2, 33, 34, 38, and 63-66 recite “a user has the ability to choose the signal.” We are therefore not persuaded by Patent Owner’s argument that Smith fails to disclose this feature.

Claim 5

The Examiner does not adopt the proposed rejection of claim 5 as anticipated by Smith. Patent Owner argues that Smith fails to disclose the features of claim 5 (Resp. Br. 15). Appellant does not appear to address the features recited in claim 5.

Claim 5 recites that the first or second electrical connector is physically detached from the coupling device and wirelessly communicates with the coupling device.

As Requester points out and as described above, Smith discloses a “wireless communication adapter or module 2” (p. 6, l. 7; Figs 4-6) that contains a “connector 1c” (p. 6, l. 16; Fig. 4) through which the adapter or

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module connects with devices. Appellant does not demonstrate that Smith discloses that the “connector 1c,” for example, is “physically detached from the coupling device and wirelessly communicates with the coupling device” as required by claim 5. Instead, “connector 1c” of Smith appears to be connected to (and not detached from) the adapter or module.

Claims 22 and 24

The Examiner does not adopt the proposed rejection of claims 22 and 24 as anticipated by Smith.

Patent Owner argues that Smith discloses that “‘home hi-fidelity unit[s]’ . . . are ‘non portable’” but fails to disclose “that the audio delivery device or the telephone [or the “home hi-fidelity unit”]. . . are also integrated into the belt during use” (Resp. Br. 16). As described above, Smith discloses a “portable version” of an adapter/module (e.g., Figs. 4-6) that connects to various “desired” legacy devices (including a portable compact disc player, for example – Fig. 6) and a mobile telephone. Since, according to Smith, the “portable version” of the adapter/module is carried “within an article of clothing” (see, e.g., Fig. 5 that illustrates the adapter/module being carried on a user’s belt, the belt being an article of clothing), one of ordinary skill in the art would have understood that a “*portable* compact disc player,” for example, is also carried within an article of clothing, the compact disc player being *portable*. Also, one of skill in the art would have understood that a “mobile telephone” (being “*portable*”) is also carried in an “article of clothing” of a user.

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Claim 27

The Examiner does not adopt the proposed rejection of claim 27 as anticipated by Smith.

Patent Owner argues that Smith fails to disclose “selectively controlling the volume of at least one of the first or second audio signals” (Resp. Br. 16). Smith discloses that the adapter/module has “an integrated keypad 2r to allow the user to transmit control message[s] . . . to control certain functions” of connected devices (p. 7, ll. 31-33). One of ordinary skill in the art would have understood that a portable compact disc, for example, has a volume control feature. Since the adapter/module allows a user to control connected devices, such as the portable compact disc, one of ordinary skill in the art would have understood that the adapter/module (with control keypad) controls the volume of audio received from the portable compact disc player, the volume being a known controllable feature of the compact disc player.

Claims 29, 31, and 71-74

The Examiner does not adopt the proposed rejection of claims 29, 31, and 71-74 as anticipated by Smith.

Patent Owner argues that Smith fails to disclose “swapping an ‘audio delivery device’ for another ‘audio delivery device’ or a ‘two-way communication device’ for another ‘two-way communication device’” (Resp. Br. 16). As described above, Smith discloses a “connector 1c” (see, e.g., p. 6, l. 16) that may “be changed to that required to interface to the desired legacy equipment” (p. 6, ll. 20-21). In other words, Smith discloses

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changing devices connected to the adapter/module. Patent Owner does not point out sufficient differences between Smith and the disputed claim feature.

Claims 12, 13, 37, 44, and 67-70

The Examiner does not adopt the proposed rejection of claims 12, 13, 37, and 44 as obvious over the combination of Smith and Wingate or the proposed rejection of claims 67-70 as obvious over the combination of Smith, Wingate, Reshefsky, Ban, Samsung, Bakker.

Patent Owner argues that Wingate discloses “mixing the audio alert [with or] without a decrease in programming volume” but fails to disclose “being able to adjust between them . . . [or the ability “*to choose* one of them]” (Resp. Br. 17). Claim 12, for example, recites “selectably adjusting and controlling a mixing weight of the first or second audio signals.” We agree with Appellant that the combination of Smith and Wingate discloses or suggests this feature. For example, as pointed out by Appellant, Wingate discloses receiving “an incoming phone call on the audio programming being played” and “decreasing the volume of the programming” in response (col. 4, ll. 34-36). Patent Owner does not sufficiently demonstrate a difference between adjusting the volume of audio programming being played with respect to an incoming phone call of Wingate and adjusting a “mixing weight” of two audio signals since in both cases, the relative weight of two signals is being adjusted.

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Other Proposed Rejections

Reversing the Examiner's decision not to reject the above-referenced claims and applying rejections based upon the Smith reference renders it unnecessary to reach the propriety of the Examiner's decision not to reject those claims on a different basis. *Cf. In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009). As such, we need not reach the propriety of the rejection of claims 59-70 under 35 U.S.C. § 102(b) as anticipated by Wingate; claims 59-66 and 71-74 under 35 U.S.C. § 102(b) as anticipated by Reshefsky; claims 67-70 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, and Reshefsky and Ban; claims 59-66 and 71-74 under 35 U.S.C. § 103(a) as unpatentable over one of Smith, Wingate, Reshefsky, Ban, Samsung, and Bakker.

CONCLUSION

The Examiner erred in refusing to reject claims 1-4 and 6-74 but did not err in refusing to reject claim 5.

DECISION

We affirm the Examiner's decision not to adopt the rejection of claim 5 as anticipated by Smith and the Examiner's decision not to adopt the rejection of claims 59-74 under 35 U.S.C. § 112, first paragraph as lacking written description support in the Specification.

We reverse the Examiner's decision not to adopt the following proposed rejections, each of which is denominated as a new ground of rejection pursuant to our authority under 37 C.F.R. § 41.77(b):

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- 1) claims 1, 2, 4, 5, 7-10, 17, 18, 20, 22, 24, 25, 27, 29, 31-33, 35, 59-66, and 71-74 under 35 U.S.C. §§ 102(a) and 102(b) as anticipated by Smith;
- 2) claim 23 under 35 U.S.C. § 103(a) as unpatentable over Smith; claims 6, 11-14, 21, 26, 28, 34, 36-38, 40-46, and 49-58 under 35 U.S.C. § 103(a) as unpatentable over Smith and Wingate;
- 3) claims 15 and 47 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, TCC;
- 4) claims 16, 30, and 48 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, and Silver;
- 5) claim 19 under 35 U.S.C. § 103(a) as unpatentable over Smith and Ford;
- 6) claim 3 under 35 U.S.C. § 103(a) as unpatentable over Smith and Lee;
- 7) claim 39 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, and Lee; and
- 8) claims 67-70 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, Reshefsky, Ban, Samsung, Bakker.

This decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.77(b) which provides that “[a]ny decision which includes a new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Correspondingly, no portion of the decision is final for purposes of judicial review. A requester may also request rehearing under 37 C.F.R. § 41.79, if appropriate, however, the Board may elect to defer

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issuing any decision on such request for rehearing until such time that a final decision on appeal has been issued by the Board.

For further guidance on new grounds of rejection, see 37 C.F.R. § 41.77(b)-(g). The decision may become final after it has returned to the Board. 37 C.F.R. § 41.77(f).

37 C.F.R. § 41.77(b) also provides that the Patent Owner, WITHIN ONE MONTH FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new grounds of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* The owner may file a response requesting reopening of prosecution before the examiner. Such a response must be either an amendment of the claims so rejected or new evidence relating to the claims so rejected, or both.

(2) *Request rehearing.* The owner may request that the proceeding be reheard under § 41.79 by the Board upon the same record. ...

Any request to reopen prosecution before the examiner under 37 C.F.R. § 41.77(b)(1) shall be limited in scope to the "claims so rejected." Accordingly, a request to reopen prosecution is limited to issues raised by the new ground(s) of rejection entered by the Board. A request to reopen prosecution that includes issues other than those raised by the new ground(s) is unlikely to be granted. Furthermore, should the patent owner seek to substitute claims, there is a presumption that only one substitute claim would be needed to replace a cancelled claim.

A requester may file comments in reply to a patent owner response. 37 C.F.R. § 41.77(c). Requester comments under 37 C.F.R. § 41.77(c) shall

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be limited in scope to the issues raised by the Board's opinion reflecting its decision to reject the claims and the patent owner's response under paragraph 37 C.F.R. § 41.77(b)(1). A newly proposed rejection is not permitted as a matter of right. A newly proposed rejection may be appropriate if it is presented to address an amendment and/or new evidence properly submitted by the patent owner, and is presented with a brief explanation as to why the newly proposed rejection is now necessary and why it could not have been presented earlier.

Compliance with the page limits pursuant to 37 C.F.R. § 1.943(b), for all patent owner responses and requester comments, is required.

The examiner, after the Board's entry of a patent owner response and requester comments, will issue a determination under 37 C.F.R. § 41.77(d) as to whether the Board's rejection is maintained or has been overcome. The proceeding will then be returned to the Board together with any comments and reply submitted by the owner and/or requester under 37 C.F.R. § 41.77(e) for reconsideration and issuance of a new decision by the Board as provided by 37 C.F.R. § 41.77(f).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART
37 C.F.R. § 41.77(b)

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			08/06/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CSR PLC,
Requester

v.

SKULLCANDY, INC.
Patent Owner

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Technology Center 3900

Before HOWARD B. BLANKENSHIP, ROBERT E. NAPPI, and
STEPHEN C. SIU, *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*.

DECISION ON REQUEST FOR REHEARING

Patent Owner submits a request for rehearing under
37 C.F.R. §§ 41.77(b)(2) and 41.79(b) (dated March 20, 2013) and
Requester submits a request for rehearing (dated April 22, 2013) from the

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Opinion of the Board of Patent Trial and Appeal Board, dated February 20, 2013 (“Decision”).

In the Decision, the Board affirmed the Examiner’s refusal to adopt the proposed rejection of claim 5¹ as anticipated by Smith but reversed the Examiner’s refusal to adopt the proposed rejection of claims 1-4 and 6-7⁴² over other grounds (*see* Decision 19-20).

A “request for rehearing must state with particularity the points believed to have been misapprehend or overlooked in rendering the Board’s opinion reflecting its decision.” 37 C.F.R. § 41.79(b)(1).

Requester’s Request for Rehearing

With respect to claim 5, Requester argues that Smith discloses a connector that is physically detached from the coupling device (3PR Req. Reh’g. 2-6). In particular, Requester adapts illustrations from the Smith reference showing a connector that is physically detached from a cell phone (3PR Req. Reh’g 6). However, we do not find each portion of Requester’s reproduced illustration in the Smith reference. For example, the cell phone

¹ As the parties point out, a typographical error in the Decision erroneously indicates that claim 5 is subject to a new ground of rejection as anticipated by Smith (Decision 20).

² As Patent Owner points out (PO Req. Reh’g 19), a typographical error in the Decision erroneously indicates that claims 62 and 67 are subject to a new ground of rejection as anticipated by Smith and that claim 62 is not subject to a new ground of rejection as obvious over Smith, Wingate, Reshefsky, Ban, Samsung, and Bakker.

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and “Remote Wireless Communication Adapter” as illustrated in Requester’s adapted illustration do not appear to be disclosed (or illustrated) in the Smith reference. Thus, we disagree with Requester for at least the previously stated reasons (Decision 15-16) and we need not consider if Requester’s proposed cell phone and “Remote Wireless Communication Adapter” anticipates the claimed feature of a connector that is physically detached from the coupling device.

Patent Owner’s Request for Rehearing

Patent Owner indicates that the Decision contains “an error with respect to claim 5” in stating that “it ‘reverse[s] the Examiner’s decision not to adopt the following proposed rejections, each of which is denominated as a new ground of rejection’ and includes claim 5 as being anticipated by *Smith* in the list that follows (Decision, pp. 19-20)” (PO Req. Reh’g 1). We agree. The Decision is amended to eliminate claim 5 from the list of claims rejected as anticipated by Smith at page 20 of the Decision.

With respect to claims 1-4 and 6-74, Patent Owner states that the Board “picks and chooses elements from two separate embodiments in *Smith*” (PO Req. Reh’g 2). In particular, Patent Owner argues that the portable wireless communication adapter that contains only one “connector 1c” is one embodiment but that the portable wireless communication adapter that contains “several connectors 1c” and can connect to “several legacy units” is a different embodiment. We disagree

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with Patent Owner. As explained in the Decision, Smith discloses that the portable wireless communication adapter (e.g., Figs. 4-5) may contain “several connectors 1c” (*see e.g.*, Decision 8-11). Hence, the Decision refers to one embodiment in Smith in which a portable wireless communication adapter with several connectors 1c is used. We also disagree with Patent Owner for at least the reasons provided by Requester (Requester’s Comments, filed April 22, 2013, p. 2-3).

Patent Owner cites a “preferred embodiment” in Smith in which, according to Patent Owner, a “non portable” “remote hi-fidelity unit” is used (PO Req. Reh’g 3). However, Patent Owner does not point out with particularity any specific points overlooked or misapprehended by the Board which would indicate that Smith fails to disclose a portable wireless communication adapter (e.g., Figs 4-5) that contains “several connectors 1c” (*see e.g.*, Decision 8-11).

Patent Owner argues that Smith fails to provide a “disclosure that the ‘several connectors 1c’ associated with adapter/module 2d in the ‘another embodiment’ or the connector 1c associated with adapter/module 2c in the ‘preferred embodiment’ are portable” and therefore, according to Patent Owner, “[t]he only way to get two portable-during-use connectors is to impermissibly pick and choose from two separate and distinct embodiments” (PO Req. Reh’g. 5). We disagree with Patent Owner for at least the reasons previously stated (*see e.g.*, Decision 8-10). In any event, we also disagree with Patent Owner’s new contention that “claim 1 requires two portable

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connectors” (PO Req. Reh’g 5). Instead, claim 1 merely recites a “portable apparatus.”

Patent Owner argues that the home hi-fidelity unit of Smith is not “portable” (Req. Reh’g 6). We need not re-address whether the home hi-fidelity unit of Smith would have been considered “portable” to one of ordinary skill in the art or not because, as was previously stated in the Decision, “Patent Owner has not sufficiently demonstrated that the adapter/module of Smith is also not portable” (Decision 10). While Patent Owner argues that “it is not Patent Owner’s burden to demonstrate that a given adapter/module in Smith is *not* portable” (PO Req. Reh’g 6), Patent Owner does not explain how the adapter/module that is explicitly disclosed by Smith as being “portable” (see Decision 9-10) is somehow not portable.

Patent Owner argues that Smith fails to disclose “a second electrical connector configured to receive a second audio signal from a *substantially arbitrarily selectable* two-way communication device” because, according to Patent Owner, the “‘connector 1c’ . . . is already connected to the headphones and therefore is not available for connection to the phone” (PO Req. Reh’g 7). Patent Owner reiterates this argument with respect to claim 25 (PO Req. Reh’g 9-11) and claim 36 (PO Req. Reh’g 12-13). However, as previously stated in the Decision, the adapter or module of Smith includes “several connectors 1c” that connect to “several legacy units” (Decision 8). Patent Owner does not persuasively demonstrate that the “several connectors 1c” are each “not available for connection to the

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phone.” We also disagree with Patent Owner for reasons set forth by Requester (Requester’s Comments, filed April 22, 2013, 4).

Patent Owner argues that “[t]here is no disclosure [in Smith] of the use of any phone” or a “selectable phone” (PO Req. Reh’g. 7). We disagree with Patent Owner for at least the reasons set forth in the Decision (*see e.g.*, Decision 8, 10-11).

Patent Owner argues that “there is no disclosure in *Smith* as to how the phone is connected to the portable adapter/module – absolutely none” (PO Req. Reh’g 7). Patent Owner reiterates this argument with respect to claim 25 (PO Req. Reh’g. 11). Claim 1 recites a connector configured to receive an audio signal from a communication device. Claim 1 does not appear to recite “how” the communication device (or phone) must be connected to the adapter/module. Because claim 1 does not appear to recite any special requirements regarding any presumed “connection” between an apparatus and a phone, we disagree with Patent Owner that Smith fails to disclose claim 1.

With respect to claim 25, Patent Owner argues that Smith fails to disclose “that the phone . . . communicates via connector 1c . . . wirelessly” (PO Req. Reh’g. 10). Patent Owner reiterates this argument with respect to claim 36 (PO Req. Reh’g. 13). We disagree with Patent Owner for at least the previously stated reasons (*see e.g.*, Decision 12) and the reasons set forth by Requester (Requester’s Comments, filed April 22, 2013, 4-5).

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With respect to claim 59-66 and 71-74, Patent Owner argues that Smith fails to disclose devices are “all portable together ‘by the same user during use’” (PO Req. Reh’g 14). We disagree with Patent Owner for at least the reasons previously set forth in the Decision (*see e.g.*, Decision 13-14).

Regarding claims 2, 38, 63, and 66, Patent Owner argues that Smith fails to disclose “selectively switching between the first and second audio signals” (PO Req. Reh’g 16-17). We disagree with Patent Owner for at least the reasons previously set forth in the Decision (*see e.g.*, Decision 15).

Regarding claims 22 and 24, Patent Owner argues that Smith fails to disclose “the portable CD player and phone . . . integrated into the same ‘article of clothing or . . . personal carrier device’” (PO Req. Reh’g. 17). We disagree with Patent Owner for at least the reasons previously set forth in the Decision (*see e.g.*, Decision 16).

Regarding claims 29, 71, and 72, Patent Owner argues that Smith fails to disclose “changing audio delivery devices” (PO Req. Reh’g 18). We disagree with Patent Owner for at least the reasons previously set forth in the Decision (*see e.g.*, Decision 17-18).

Regarding claim 37, Patent Owner argues that Wingate fails to disclose “that the user is able to choose the volume of audio programming relative to an incoming call” (PO Req. Reh’g. 18). We disagree with Patent Owner for at least the reasons previously set forth in the Decision (*see e.g.*, Decision 18).

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With respect to claim 37, Patent Owner also argues that claim 27 recites “a means-plus-function element” and “the ‘corresponding structure’ for performing the recited function is volume controller 72, as seen in Figure 7 of the ‘090 patent” (PO Req. Reh’g. 18). Patent Owner argues that “there is no structure disclosed in *Wingate* that is the same as [or equivalent to] volume controller 72” (*id.*). “The use of the word ‘means,’ which is part of the classic template for functional claim elements, gives rise to ‘a presumption that the inventor used the term advisedly to invoke the statutory mandates for means-plus-functions clauses’.” *Sage Products, Inc. v. Devon Industries, Inc.*, 126 F.3d 1420, 1427 (Fed. Cir. 1997) *citing York Prods., Inc. v. Cent. Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1574 (Fed. Cir. 1996).

We disagree with Patent Owner’s contention that the combination of Smith and Wingate fails to disclose or suggest a structure equivalent to the “volume controller 72” as disclosed in the ‘090 patent. The Specification discloses a coupling device “may include a volume controller 72 to control the volume” (col. 5, ll. 48-49) and illustrates the “volume controller 72” as a generalized box (Fig. 7). Patent Owner does not point to any additional disclosure of the structure of “volume controller 72” in the Specification. As previously described, Wingate also discloses a generalized structure (capable of being depicted as a box) for adjusting (or “decreasing”) “the volume of the programming” (*see e.g.*, Decision 18). Patent Owner asserts that the structure that adjusts the volume disclosed by Wingate is somehow not

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equivalent to the generalized structure (illustrated as a generalized box) that controls volume in the ‘090 Specification (PO Req. Reh’g 18). Because we find no difference in the two generalized structures (i.e., the “structure” of Wingate vs. that of the ‘090 patent) that perform the same function, and because Patent Owner has not pointed out any specific differences supporting the assertion of non-equivalence, we cannot agree with Patent Owner.

Patent Owner argues that the rejection of claims 62 and 66 is improper because “Requester did not propose an anticipation rejection for claim 36 from which these claims depend” (PO Req. Reh’g. 19). We agree. We rejected claim 36 as obvious over Smith and Wingate and claim 67, which depends from claims 36 and 62, as obvious over Smith, Wingate, Reshefsky, Ban, Samsung, and Bakker. We inadvertently omitted claim 62 as being rejected over the same ground as claim 67, which depends from claim 62. Hence, we modify the Decision to reflect that we do not reverse the Examiner’s decision not to adopt a rejection of claims 62 and 67 as anticipated by Smith (no such rejection having been proposed) but we reverse the Examiner’s decision not to adopt the proposed rejection of claims 62 and 67-70 as obvious over Smith, Wingate, Reshefsky, Ban, Samsung, and Bakker.

Regarding claims 6, 11-14, 21, 26, 28, 34, 36-58 and 70, Patent Owner argues that it would not have been obvious to one of ordinary skill in the art to have combined the teachings of Smith and Wingate (PO Req.

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Reh’g. 19-21). Patent Owner also argues that it would not have been obvious to one of ordinary skill in the art to have combined the teachings of Smith and Wingate with the TCC Publication (PO Req. Reh’g. 22). None of these arguments were previously raised by the Patent Owner. We disagree with Patent Owner that we overlooked or misapprehended points regarding the combinability of the Smith, Wingate, and/or TCC Publication at least because such points were not previously raised. In any event, we disagree with Patent Owner’s newly raised contentions regarding the combinability of the Smith, Wingate, and/or TCC Publication references at least for the reasons set forth by Requester (Requester’s Comments, filed April 22, 2013, 5-6).

With respect to claim 25, Patent Owner argues that the Board overlooked the fact that “claimed elements must be arranged in the prior art as they are arranged in the claim” (PO Req. Reh’g 9). We disagree with Patent Owner’s contention that Smith fails to disclose claim 25. For at least the reasons set forth in the Decision, we continue to find that Smith anticipates claim 25 (Decision 11-12).

CONCLUSION

For the foregoing reasons, Requester’s Request for Rehearing has been considered and is DENIED. Patent Owner’s Request for Rehearing has been considered and is GRANTED to the extent that we amend the Decision to reflect the following:

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- 1) We reverse the Examiner's decision not to adopt the rejection of claims 1, 2, 4, 7-10, 17, 18, 20, 22, 24, 25, 27, 29, 31-33, 35, 59-61, 63-66, and 71-74 under 35 U.S.C. §§ 102(a) and 102(b) as anticipated by Smith; and
- 2) We reverse the Examiner's decision not to adopt the rejection of claims 62 and 67-70 under 35 U.S.C. § 103(a) as unpatentable over Smith, Wingate, Reshefsky, Ban, Samsung, and Bakker.

Patent Owner's Request for Rehearing is otherwise DENIED. The reversal of the Examiner's decision not to adopt rejections of claims over other grounds as stated in the Decision (Decision 20) remains unchanged. Accordingly, the Request for rehearsals are GRANTED-IN-PART.

GRANTED-IN-PART

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Patent 7,395,090 B2

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US007187948B2

(12) **United States Patent**
Alden

(10) **Patent No.:** US 7,187,948 B2
(45) **Date of Patent:** Mar. 6, 2007

(54) **PERSONAL PORTABLE INTEGRATOR FOR MUSIC PLAYER AND MOBILE PHONE**

(75) Inventor: **Richard P. Alden**, Park City, UT (US)

(73) Assignee: **Skullcandy, Inc.**, Park City, UT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 358 days.

(21) Appl. No.: **10/382,960**

(22) Filed: **Mar. 6, 2003**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(51) **Int. Cl.**

H04B 1/08 (2006.01)

(52) **U.S. Cl.** 455/557; 455/556.1; 455/550.1

(58) **Field of Classification Search** 455/569.1, 455/575.1, 575.2, 90.3, 557, 426.1, 556.1, 455/344, 347, 550.1

See application file for complete search history.

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Primary Examiner—Edward F Urban

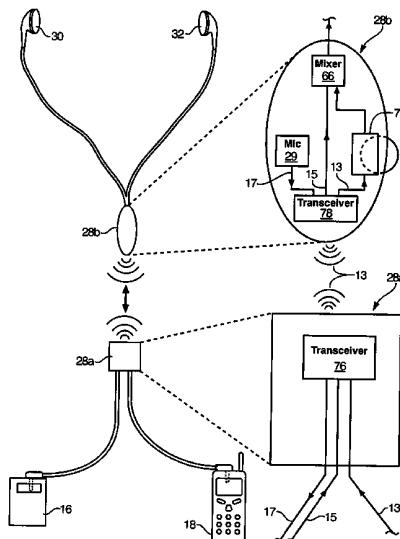
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(57) **ABSTRACT**

A personal portable integrator is used to integrate the services of an arbitrary audio delivery device such as an MP3, CD, DVD, radio, or other media player, with the services of an arbitrary two-way communication device such as a mobile phone, or a two-way radio such as a walkie talkie, citizen band radio (e.g. CB), HAM radio, marine or aviation radio, and the like. The portable integrator receives and provides input and output signals from both the audio delivery device and the two-way communication device, thereby enabling a user to listen to music or other audio material and receive and place phone calls on a mobile phone simultaneously. The portable integrator provides these services by switching between the audio and communication devices, mixing signals received therefrom, and optionally enabling a user to reduce the volume or mute the signals as desired.

3 Claims, 8 Drawing Sheets



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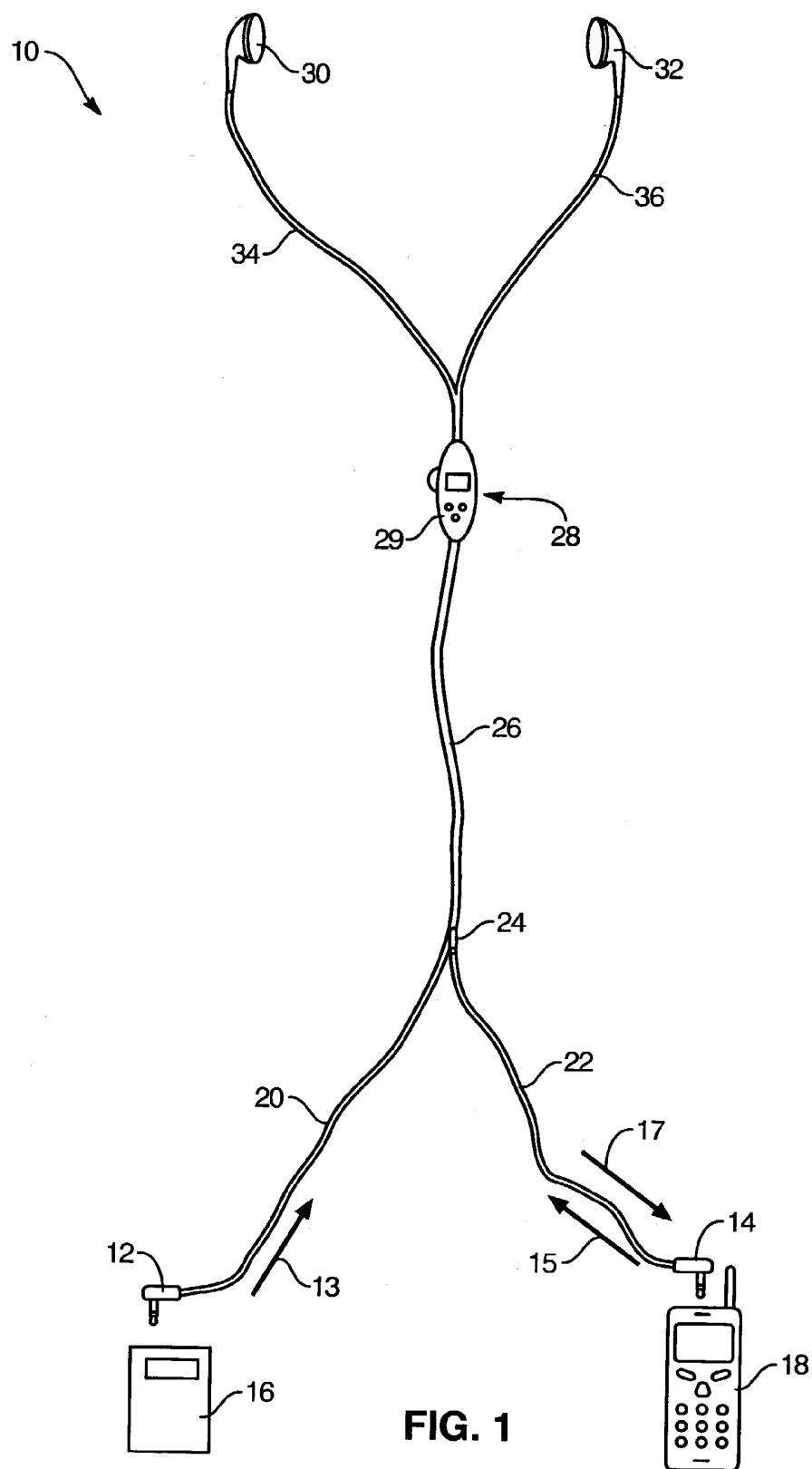
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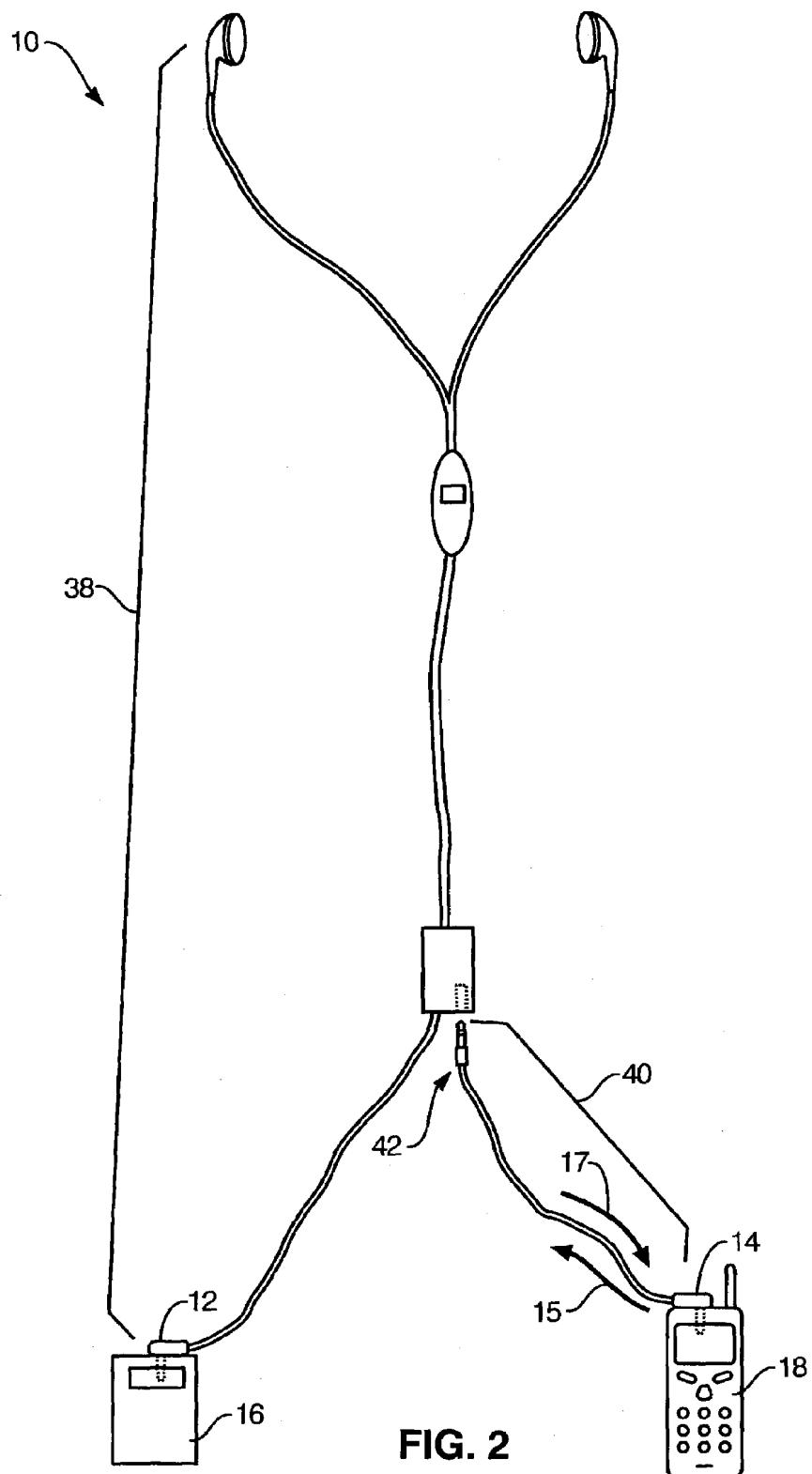


FIG. 2

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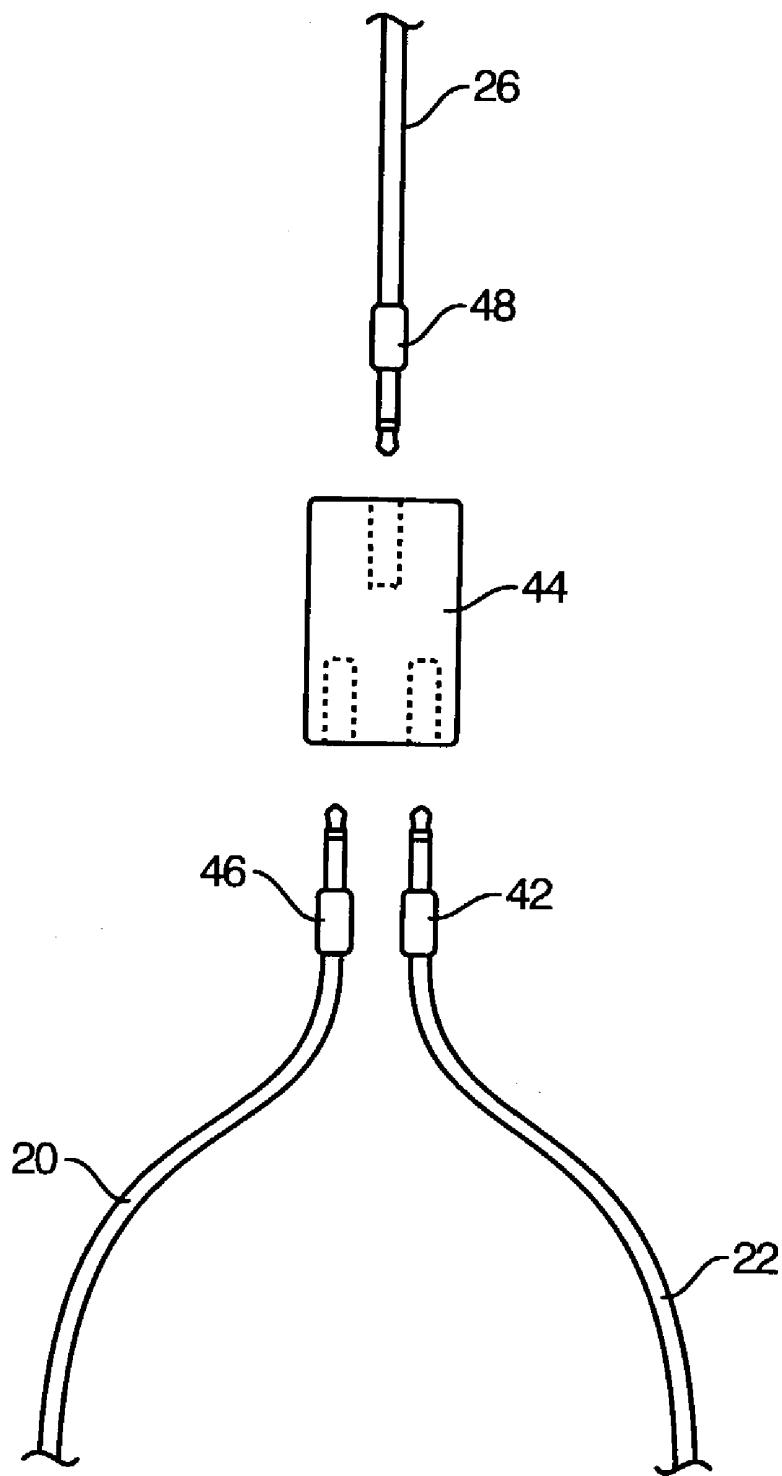


FIG. 3

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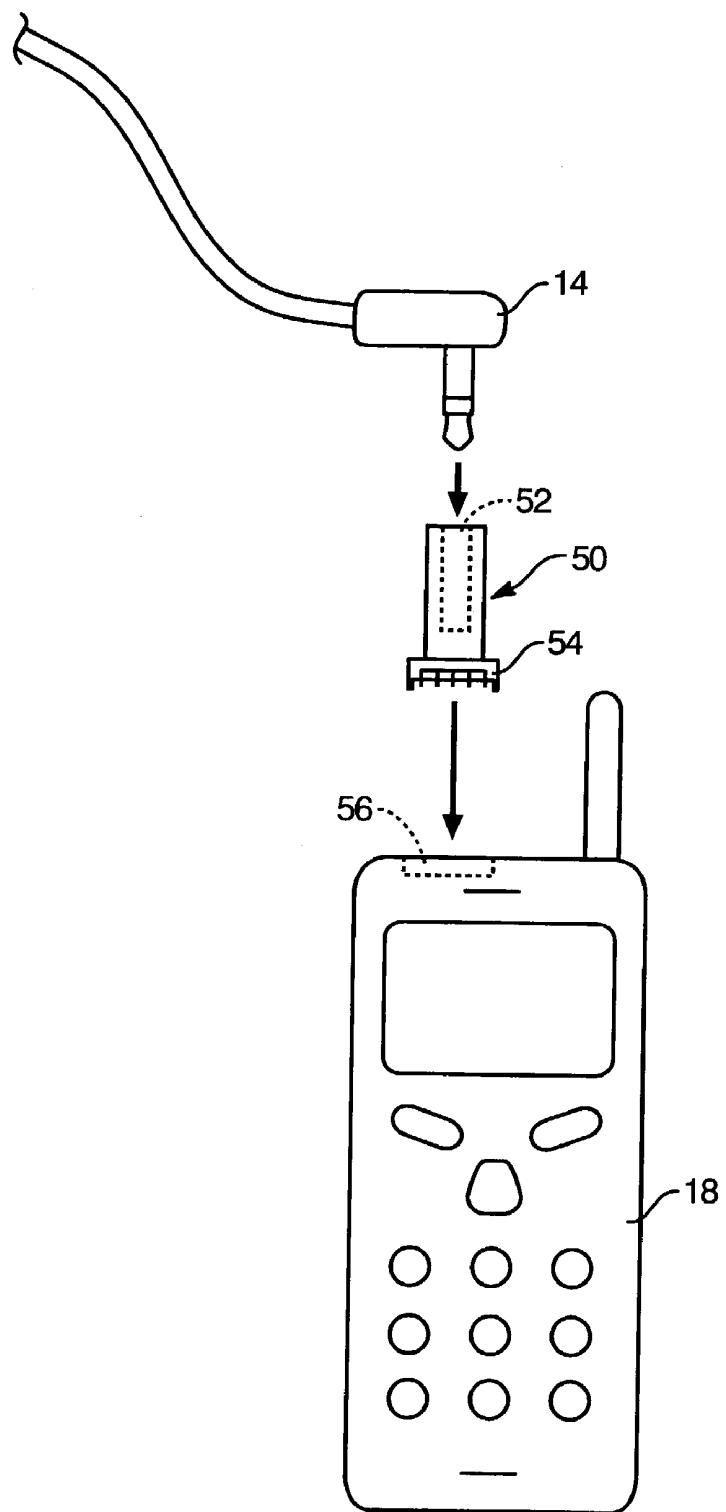


FIG. 4

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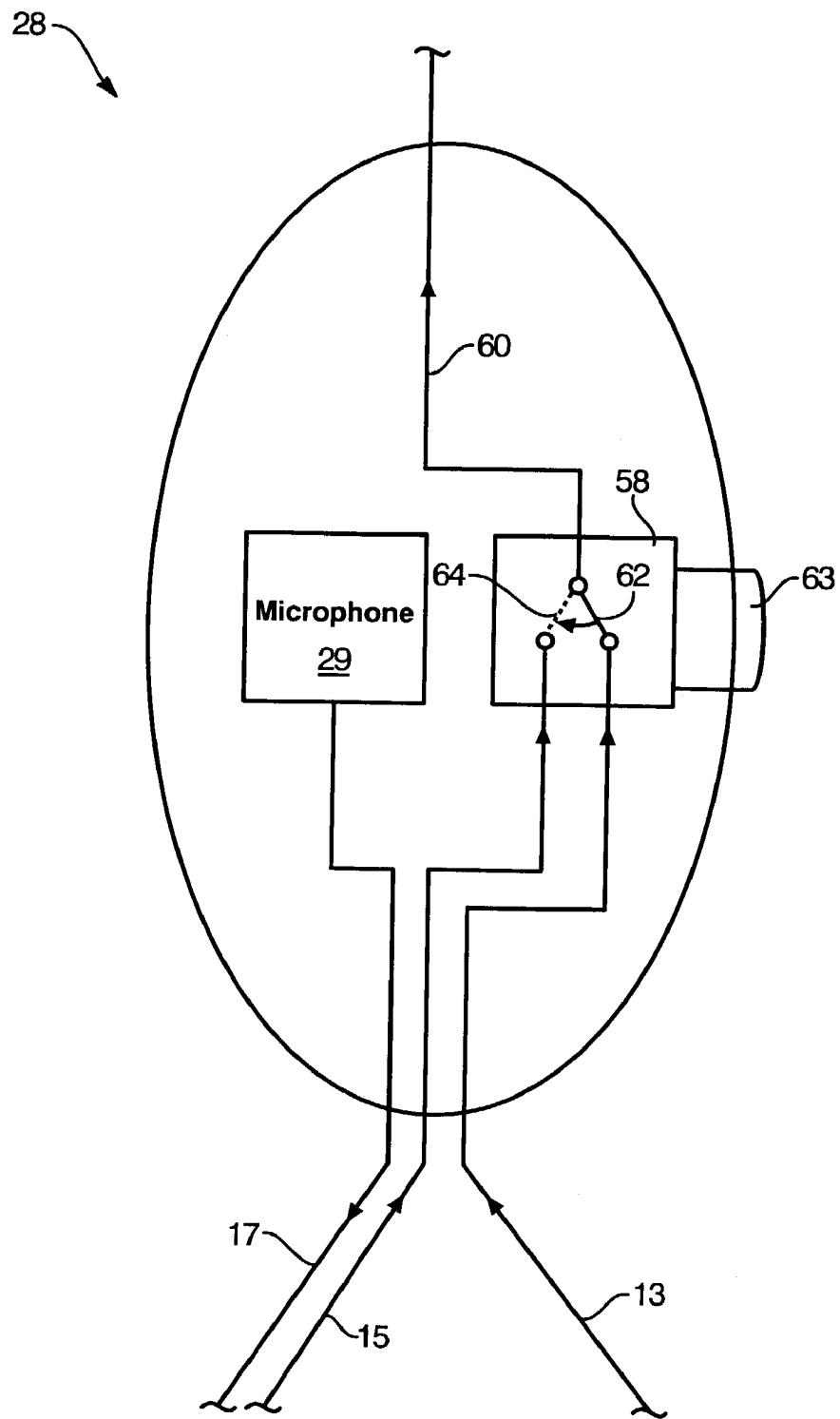


FIG. 5

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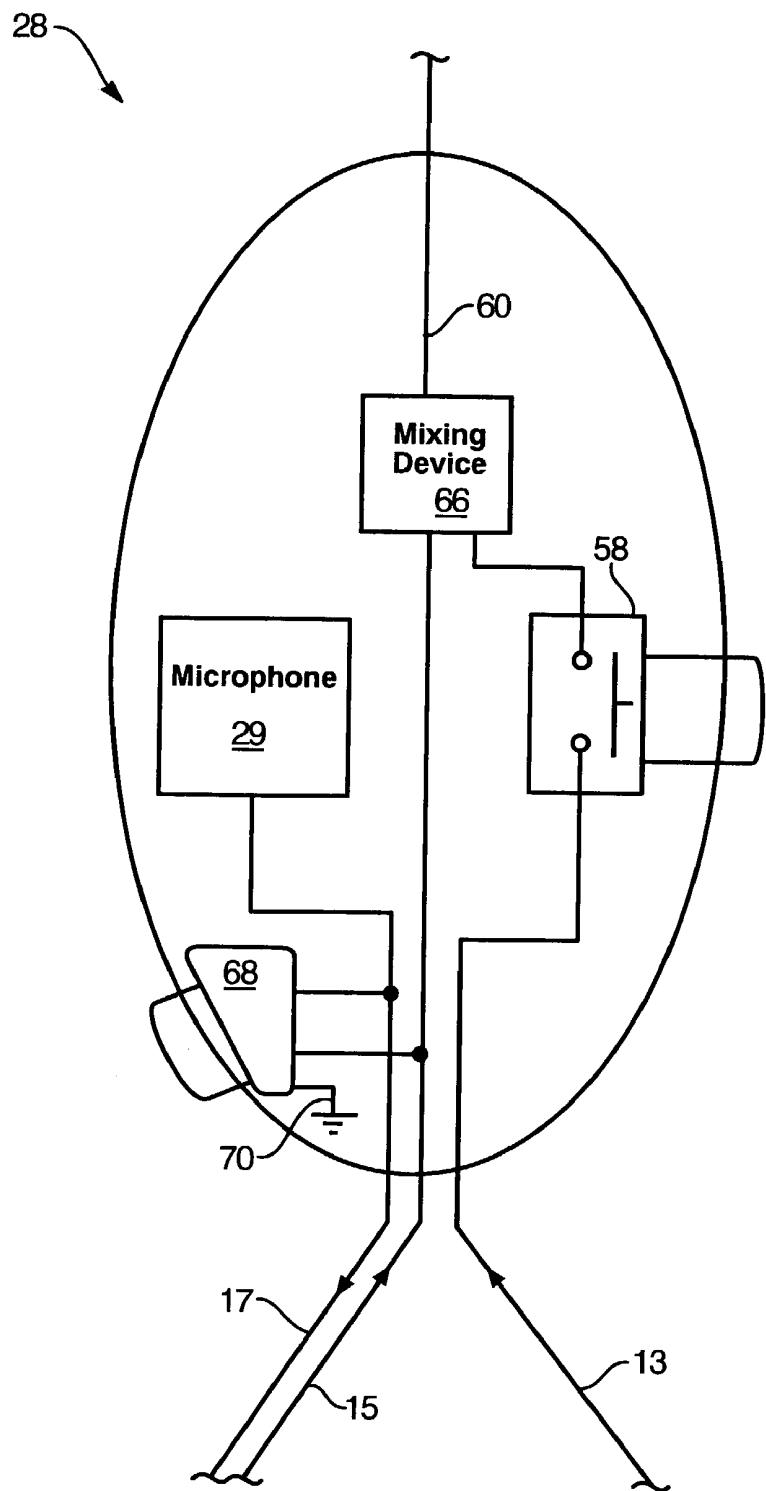


FIG. 6

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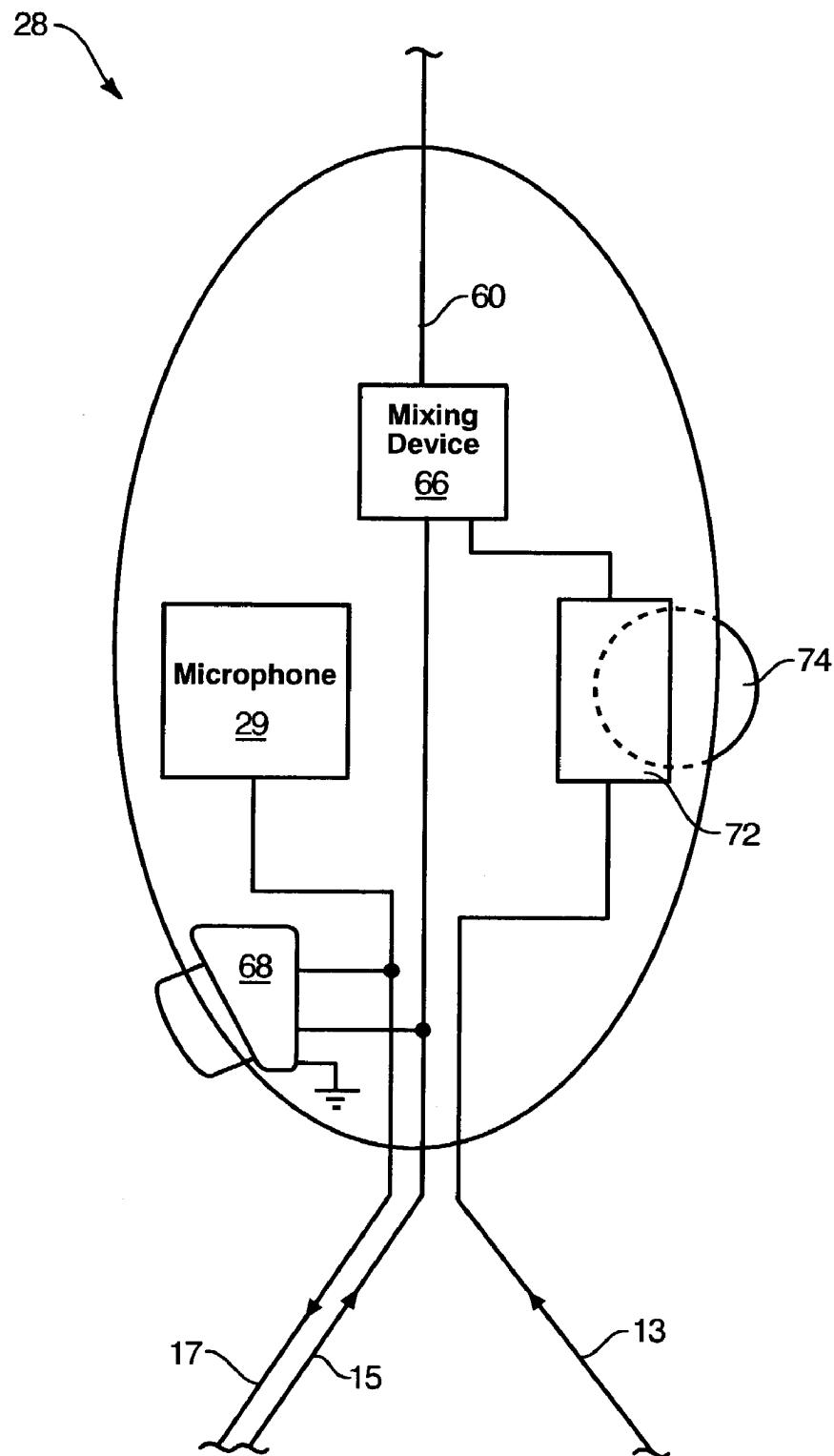


FIG. 7

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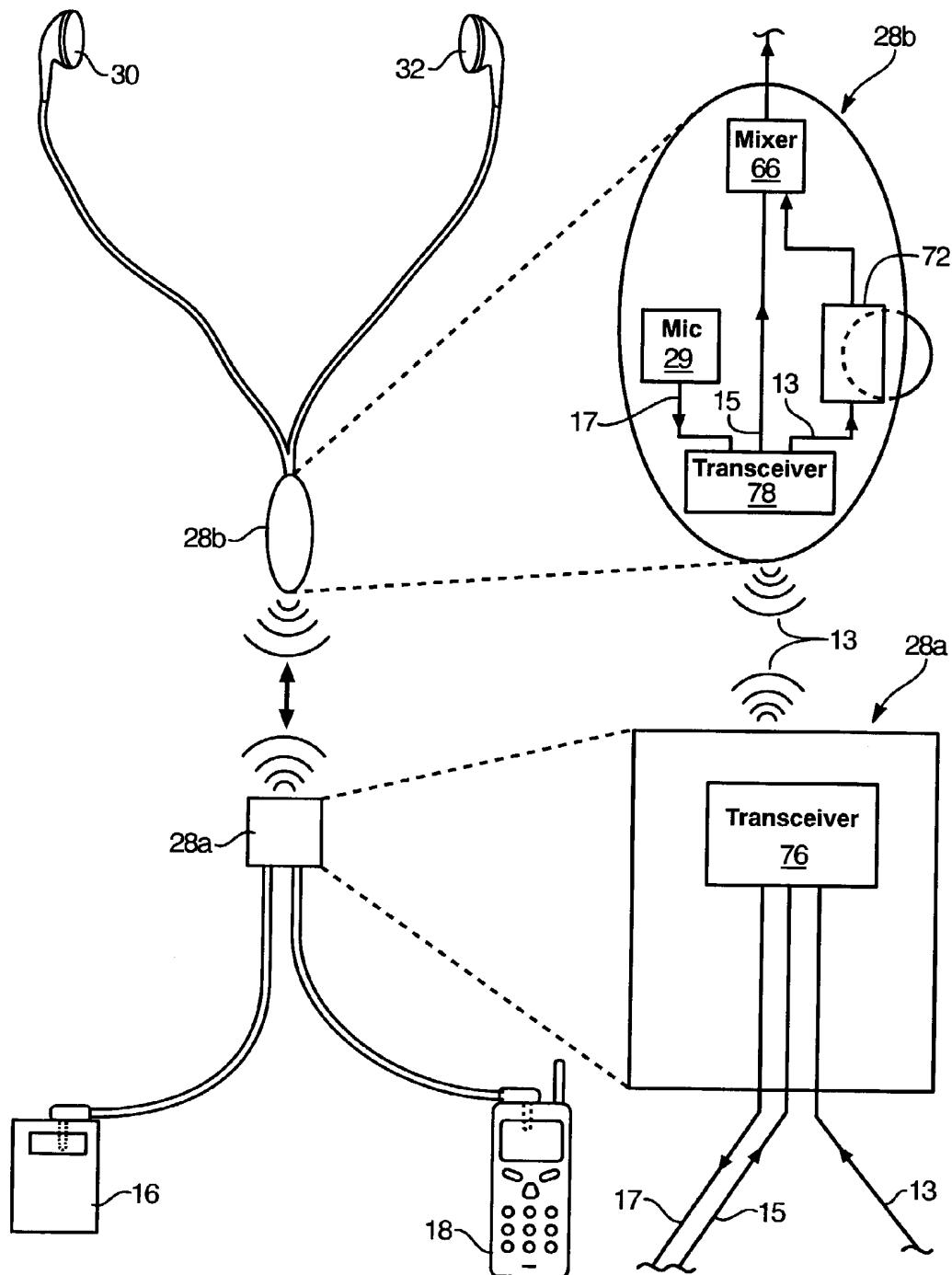


FIG. 8

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1**PERSONAL PORTABLE INTEGRATOR FOR
MUSIC PLAYER AND MOBILE PHONE****RELATED APPLICATIONS**

This application claims priority to U.S. provisional patent application Ser. No. 60/370,711 entitled SPLIT STYLE HEADPHONES filed on Apr. 9, 2002.

BACKGROUND**1. The Field of the Invention**

This invention relates to integrating electronic devices and, more particularly, to novel systems and methods for integrating services provided by personal music players and mobile phones.

2. The Background Art

The use of mobile telephones and other wireless communication devices has increased dramatically in recent years. Likewise, electronic music players, such as MP3, CD, DVD, and like players have proliferated. Some companies have attempted to integrate music players and mobile two-way communication devices into single devices. While integration may reduce the number of devices a user is required to carry, a user may unnecessarily discard devices that are still fully functional, incurring unnecessary expense.

With respect to music players and mobile phones, various conflicts may arise when attempting to operate independent devices simultaneously. For example, users may listen to portable music players while exercising, traveling, working, relaxing, and performing like activities. However, users may desire to simultaneously place and receive phone calls, activities that may be inherently difficult to perform while listening to music or other audio material. For example, a user may be unable to hear a phone ring while listening to music using headphones, earphones, or the like. Moreover, if a user is able to accept a call, the user may be required to remove headphones, reduce the volume of or mute a music player, pick up a mobile phone handset, or like actions, in order to accept or place a call. This may be an excessively clumsy process.

What is needed is apparatus and methods for users to simultaneously accept and place phone calls using a mobile phone or other two-communication device while listening to music, or other audio material using an independent audio delivery device.

What is further needed is apparatus and methods to integrate the services of substantially any arbitrary two-way communication device with substantially any arbitrary music or audio delivery device.

SUMMARY OF THE INVENTION

A primary object of the present invention is to provide apparatus and methods for integrating two-way communication devices with audio delivery devices. An apparatus in accordance with the invention may include a first electrical connector connected to receive a first audio signal from a substantially arbitrarily selectable audio delivery device, such as an MP3, CD, DVD, radio, or other media player. A second electrical connector may be connected to receive a second audio signal from a substantially arbitrarily selectable two-way communication device, such as a mobile phone, or a two-way radio such as a walkie talkie, citizen band radio (e.g. CB), HAM radio, marine and aviation radio, and the like.

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A coupling device independent from the audio and two-way communication devices may be connected to receive the first and second audio signals. A third audio signal comprising at least one of the first and second audio signals may be transmitted from the coupling device to an acoustic device, such as headphones, earphones, speakers, or the like to convert the third audio signal to an acoustic wave having an audio range corresponding to a hearing range of a user.

In certain embodiments, a switch may be connected to the apparatus to enable a user to selectively switch between the first and second audio signals to provide the third audio signal to the acoustic device. In other embodiments, a mixer may be connected to the apparatus to mix the first and second audio signals to create the third audio signal.

In selected embodiments, the apparatus may include a microphone connected to transmit a voice signal of a user to the two-way communication device. Thus, the two-way communication device may be located away from the face of the user. The apparatus may also include a volume controller connected to selectively control the volume of at least one of the first and second audio signals. In certain embodiments, the volume controller may control the first audio signal (e.g. the audio signal originating from the audio delivery device) so that a user may selectively raise or lower the volume of the music or other media while receiving or placing a call.

In selected embodiments, the apparatus may employ electrical wiring to route the audio signals and the voice signal to and from the coupling device. A switch, selectively operable by a user, may be used to connect at least two of the second audio signal wire, the voice signal wire, and a ground wire, to activate a function of the two-way communication device. For example, if the two-way communication device is a mobile phone, the switch may be used to trigger a function of the mobile phone such as a mute command, a call connect command, a call disconnect command, voice-activated dialing, a command to call the last number dialed, and the like.

The coupling device may contain any or all of the hardware previously described including but not limited to the microphone, the switches, the mixer, and the volume controller. In selected embodiments, the audio signal from the two-way communication device may be characterized by a threshold value. The second audio signal may be accorded priority relative to the first audio signal originating from the audio delivery device. Thus, the second audio signal may interrupt the first audio signal upon reaching the threshold value.

BRIEF DESCRIPTION OF THE DRAWINGS

The objects and features of the present invention will become more fully apparent from the following description, taken in conjunction with the accompanying drawings. Understanding that these drawings depict only typical embodiments of the invention and are, therefore, not to be considered limiting of its scope, the invention will be described with additional specificity and detail through use of the accompanying drawings in which:

FIG. 1 is a plan view of one embodiment of a personal portable integrator usable with a music player and a mobile phone;

FIG. 2 is a plan view of one embodiment of a personal portable integrator having a device-specific link to a two-way communication device;

FIG. 3 is a schematic block diagram illustrating one embodiment of connectors that may be used to adapt the invention to a wide variety of devices;

FIG. 4 is a schematic block diagram of one embodiment of an adapter that may be used to interface to a specific device;

FIG. 5 is a schematic block diagram of one embodiment of components contained within a coupling device in accordance with the invention;

FIG. 6 is a schematic block diagram of an alternative embodiment of components contained within a coupling device in accordance with the invention; and

FIG. 7 is a schematic block diagram of another alternative embodiment of components contained within a coupling device in accordance with the invention; and

FIG. 8 is a schematic block diagram of one embodiment of a personal portable integrator usable with a music player and a mobile phone using wireless technology.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

It will be readily understood that the components of the present invention, as generally described and illustrated in FIGS. 1 through 8 herein, could be arranged and designed in a wide variety of different configurations. Thus, the description herein is not intended to limit the scope of the invention, but is merely representative of certain presently preferred embodiments of devices and systems in accordance with the invention. Those of ordinary skill in the art will, of course, appreciate that various modifications to the details herein may easily be made without departing from the essential characteristics of the invention, as described. Thus, the following information is intended only by way of example, and simply illustrates certain presently preferred embodiments consistent with the invention.

Referring to FIG. 1, a portable integrator 10 for use with a two-communication device 18, such as a mobile phone 18, and an audio delivery device 16, such as a portable MP3 player or CD player, may include electrical connectors 12, 14 to interface with the devices 16, 18. The electrical connectors 12, 14 may vary according to the device. For example, an audio device 16 may require a jack 12 having specific dimensions and with a specified number of contact points. Likewise, a connector 14 may connect to a particular communication device 18. The connectors 12, 14 may be modified as needed to adapt to other devices 16, 18.

The connectors 12, 14 may be adapted to receive and provide signals 13, 15, 17 from the devices 16, 18. For example, the connector 12 may simply receive an audio signal 13 from the audio device 16. The signal 13 may be a monophonic, stereophonic, or like representation of an audio signal 13. Likewise, the connector 14 may receive an audio signal 15 from the communication device 18. In addition, the connector 14 may provide a voice signal 17, or other input signal 17, to the communication device 18 from a user thereof or other outside source.

Sheathed flexible wires 20, 22 or other transmission means such as optical fibers 20, 22, or wireless technology such as Bluetooth may be used to carry the signals 13, 15, 17 to and from the devices 16, 18. In certain embodiments, a reinforcement member 24 may be used to provide strength at a junction point 24 of the lines 20, 22. The reinforcement member 24 may also be used to form a transition point 24 where wires 20, 22 may be bundled together beneath a single protective sheathing 26.

A coupling device 28 may receive and transmit the signals 13, 15, 17 through the path 26. The coupling device 28 may act as a controller 28 or hub 28 to route the signals 13, 15, 17 to an acoustic device 30, 32, such as headphones 30, 32,

earphones 30, 32, speakers 30, 32, or the like. The coupling device 28 may also contain a microphone 29, thus providing a hands free set 29, 30, 32, usable with a mobile phone 18. A pair of wires 34, 36 or other communication paths 34, 36 may connect the coupling device 28 to the acoustic device 30, 32.

Referring to FIG. 2, as was previously mentioned, devices 16, 18, such as mobile phones 18, may not use a standardized jack 12, 14. However, it may be undesirable to provide a separate integrator device 10 for each variation of devices 12, 14 that may be available. Therefore, in certain embodiments, a portion 38 of the portable integrator 10 may be provided as a universal component 38 while another portion 40 may serve as a device-specific component 40. For example, audio devices 16 may use a standardized connector 12 or jack 12.

Therefore, a universal component 38 may adapt to the vast majority of audio devices 16 that may be available. Conversely, many two-way communication devices 18, such as mobile phones 18 may not have standardized connections 14. Therefore, device-specific components 40 may be provided having a standard connection 42 that may interface with the universal component 38, while another adapter 14 or connector 14 may be specific to the device 18.

In cases where devices 18 may have a varying number of inputs 17 and outputs 15, dead pins, wires (communication paths), and the like may be used as needed to increase or decrease the number of inputs 15 or outputs 17 according to specific devices 18. In addition, a user may only desire to use a single device 16 for a given period of time and may wish to remove the portion 40 until it is needed.

Referring to FIG. 3, while continuing to refer generally to FIGS. 1 and 2, adaptability of the integrator device 10 may be provided in various ways. For example, in certain embodiments, the integrator device 10 may include an adapter 44 that may provide an interface 44 to each of the devices 12, 18, 28. In selected embodiments, a connection 20 to an audio device 16 may be swapped with another connection 20 fitted for another device 16, a connection 22 to a communication device 18 may be swapped with another connection 22 fitted for another communication device 18, a coupling device 28 and an acoustic device 30, 32 may be swapped with other devices 28, 30, 32, and the like. As was previously mentioned, certain portions 26, 20, 22 may be added or deleted as needed by the user. The adapter 44 may use a variety of connectors 42, 46, 48 to connect to the adapter 44. In certain embodiments, the adapter 44 may wirelessly communicate with each of the devices 16, 18 using a wireless technology, thereby acting as a wireless communication hub 44.

Referring to FIG. 4, in selected embodiments, adapters 50 may be provided in accordance with the invention to adapt a portable integrator 10 to specific devices 18. For example, an adapter 50 may include an interface 52 for interfacing with a connector 14. Likewise, the adapter 50 may include another interface 54 that may connect directly to a device 18 at an input 56. In addition, other features may be built into the adapter 50 such as impedance matching, signal amplification, and the like.

Referring to FIG. 5, in certain embodiments, the coupling device 28 may include a switch 58 to selectively enable a user to connect one of the signals 13, 15 through to the output 60. For example, a user may listen to an audio recording or live transmission from an audio device 16 with the switch 58 in a first position 62. If the user receives or desires to place a call, the switch 58 may be changed to a second position 64 to connect the communication device 18

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through to the output 60. The switch 58 may include a button 63 or like mechanism 63 to enable a user operation thereof. Thus, the signal 13 from the audio device 16 may be conveniently and selectively disconnected while the user operates the communication device 18. In this way, simple operation of a switch 58 may enable a user to operate an audio delivery device 16 and a communication device 18 through a single acoustic device 30, 32.

The coupling device 28 may also include a microphone 29 to transmit a voice or other audio signal 17 back to the communication device 18. The coupling device 28 may contain one or several apertures to permit an acoustic wave to directly enter and drive the microphone 29. In certain embodiments, the coupling device 28 may be located, such as by clipping, proximate the face of a user so that the switch 58, microphone 29, and other controls located therein, may be easily accessed and used by a user. Likewise, the communication device 18 and audio device 16 may be located away from the user's face, clipped along a belt line, in a pocket, in a bag, or the like.

Referring to FIG. 6, in certain embodiments, the coupling device 28 may include a mixer 66 to mix the audio signals 13, 15 originating from the audio and communication devices 16, 18. Thus, the audio signals 13, 15 may be heard simultaneously by a user through an acoustic device 30, 32. In certain instances, a ring or other sound may indicate a call is being received by the communication device 18 and may be audible over the sound of the music or other media through the acoustic device 30, 32. In this case, the audio signal 13 from the audio device 16 may be muted or disconnected by a user with a switch 58 while the user receives or places a call. Once the call is finished, the user may once again trigger the switch to begin listening to music or other audible media. Thus, a user may simultaneously hear and monitor both devices 16, 18 through a single acoustic device 30, 32 and may mute or disconnect at least one of the devices 16, 18 when needed.

In certain embodiments, the coupling device 28 may also include a switch 68 or other control device 68 to control features of the communication device 18, the audio device 16, or a combination thereof. For example, a switch 68 may connect inputs 17 or outputs 15 of the communication device 18 together, connect them to a ground 70, provide control signals to the device 18, or the like, to control features of the communication device 18. For example, a switch 68 or control device 68 may control features of the communication device 18 such as performing a mute command, a call connect command, a call disconnect command, voice-activated dialing, a command to call the last number dialed, or like features. The features activated may vary from device 18 to device 18 and may depend on the device engineering and configuration.

Referring to FIG. 7, in selected embodiments, the coupling device 28 may include a volume controller 72 to control the volume of at least one of the audio signals 13, 15 from the audio device 16 and the communication device 18. For example, as in the previous example, a mixer 66 may provide that audio signals 13, 15 be heard simultaneously by a user through an acoustic device 30, 32. When a call is received or placed on the communication device 18, a user may adjust the volume of the audio signal 13 using the volume controller 72. If desired, the user may adjust the volume such that music or audio material is still heard in the background while receiving or placing a call. Once a call is finished, a user may readjust the volume to a desired level. Thus, a user may simultaneously hear and monitor both

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devices through a single acoustic device 30, 32, and may adjust the volume of at least one of the devices 16, 18 when desired.

Referring to FIG. 8, in certain embodiments, a coupling device 28 may be divided into a pair of components 28a, 28b that wirelessly communicate with one another using a technology such as Bluetooth. For example, a first component 28a may include a transceiver 76 receptive to the signals 13, 15, 17 from the audio and communication devices 16, 18. The transceiver 76 may convert these signals to wirelessly transmittable frequencies 80 using an appropriate wireless protocol such that they may be transmitted to a peer transceiver 78. The transceiver 78 may then convert the frequencies 80 back to signals 13, 15, 17, where they may be processed by the coupling device 28b in accordance with a process like those described in FIGS. 5 through 7.

One of ordinary skill in the art will recognize that the wireless technology described in FIG. 8 may be used in a wide variety of different configurations and the example presented herein is not intended to limit the scope or the invention. For example, in certain embodiments, portions or all of the circuitry 29, 66, 72 or components 29, 66, 72 may be located in the housing 28a. In other embodiments, each of the devices 16, 18, may communicate wirelessly with the coupling device 28, 28a or 28b.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative, and not restrictive. The scope of the invention is, therefore, indicated by the appended claims, rather than by the foregoing description. All changes within the meaning and range of equivalency of the claims are to be embraced within their scope.

40 The invention claimed is:

1. A portable and wireless apparatus for wirelessly integrating a two-way communication device and an audio delivery device, wherein the portable and wireless apparatus is configured in size and shape to be portably carried in either a hand of a user or an article of clothing during use of the portable and wireless apparatus, the portable and wireless apparatus comprising:

means for wirelessly receiving a first audio signal from a substantially arbitrarily selectable audio delivery device;

means for wirelessly receiving a second audio signal from a substantially arbitrarily selectable two-way communication device;

55 a coupling device independent from the audio and two-way communication devices, wherein the second audio signal is characterized by a threshold value, the second audio signal is accorded priority relative to the first audio signal, and the second audio signal interrupts the first audio signal upon reaching the threshold value, the coupling device comprising said means for receiving said first and second audio signals, said coupling means further comprising:

means for transmitting a third audio signal comprising at least one of the first or second audio signals to an acoustic device adapted to convert the third acoustic

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wave to an audio range corresponding to a hearing range of a user.

2. An apparatus as recited in claim 1, further comprising means for mixing the first and second audio signals into the third audio signal and for enabling simultaneous use of said audio and two-way communications devices. 5

3. An apparatus as recited in claim 2, further comprising means for selectively adjusting and controlling a mixing weight of the first and second audio signals as part of the third audio signal.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,187,948 B2
APPLICATION NO. : 10/382960
DATED : March 6, 2007
INVENTOR(S) : Alden

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

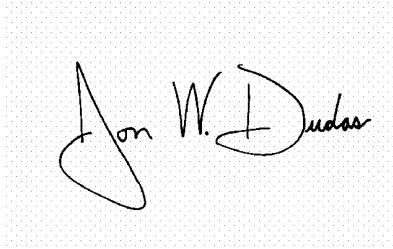
Column 6

Line 12, remove [80]

Line 15, remove [80]

Signed and Sealed this

Fourth Day of December, 2007



JON W. DUDAS
Director of the United States Patent and Trademark Office



US007395090B2

(12) **United States Patent**
Alden

(10) **Patent No.:** US 7,395,090 B2
(b5) **Date of Patent:** Jul. 1, 2008

(54) **PERSONAL PORTABLE INTEGRATOR FOR MUSIC PLAYER AND MOBILE PHONE**

(75) Inventor: **Richard P. Alden**, Park City, UT (US)

(73) Assignee: **Skullcandy, Inc.**, Park City, UT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 13 days.

(21) Appl. No.: **11/548,195**

(22) Filed: **Oct. 10, 2006**

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation of application No. 10/382,960, filed on Mar. 6, 2003, now Pat. No. 7,187,948.

(60) Provisional application No. 60/370,711, filed on Apr. 9, 2002.

(51) **Int. Cl.**
H04B 5/00 (2006.01)

(52) **U.S. Cl.** **455/557**; 455/569.1; 381/74;
381/79

(58) **Field of Classification Search** 455/569.1,
455/575.1, 575.2, 90.3, 557, 426.1, 344;
381/74, 79, 123

See application file for complete search history.

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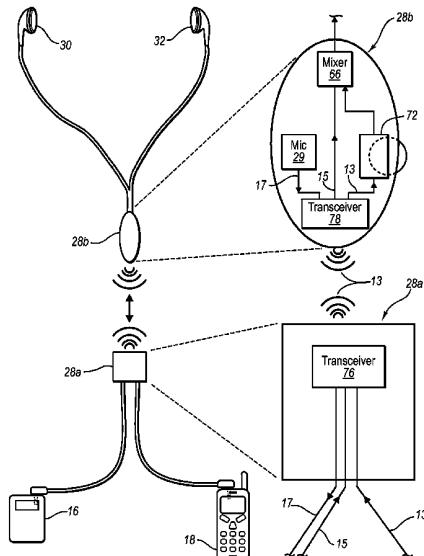
Primary Examiner—Blane J Jackson

(74) *Attorney, Agent, or Firm*—Workman Nydegger

(57) **ABSTRACT**

A personal portable integrator is used to integrate the services of an arbitrary audio delivery device such as an MP3, CD, DVD, radio, or other media player, with the services of an arbitrary two-way communication device such as a mobile phone, or a two-way radio such as a walkie-talkie, citizen band radio (e.g., CB), HAM radio, marine or aviation radio, and the like. The portable integrator receives and provides input and output signals from both the audio delivery device and the two-way communication device, thereby enabling a user to listen to music or other audio material and receive and place phone calls on a mobile phone simultaneously. The portable integrator provides these services by switching between the audio and communication devices, mixing signals received therefrom, and optionally enabling a user to reduce the volume or mute the signals as desired.

58 Claims, 8 Drawing Sheets



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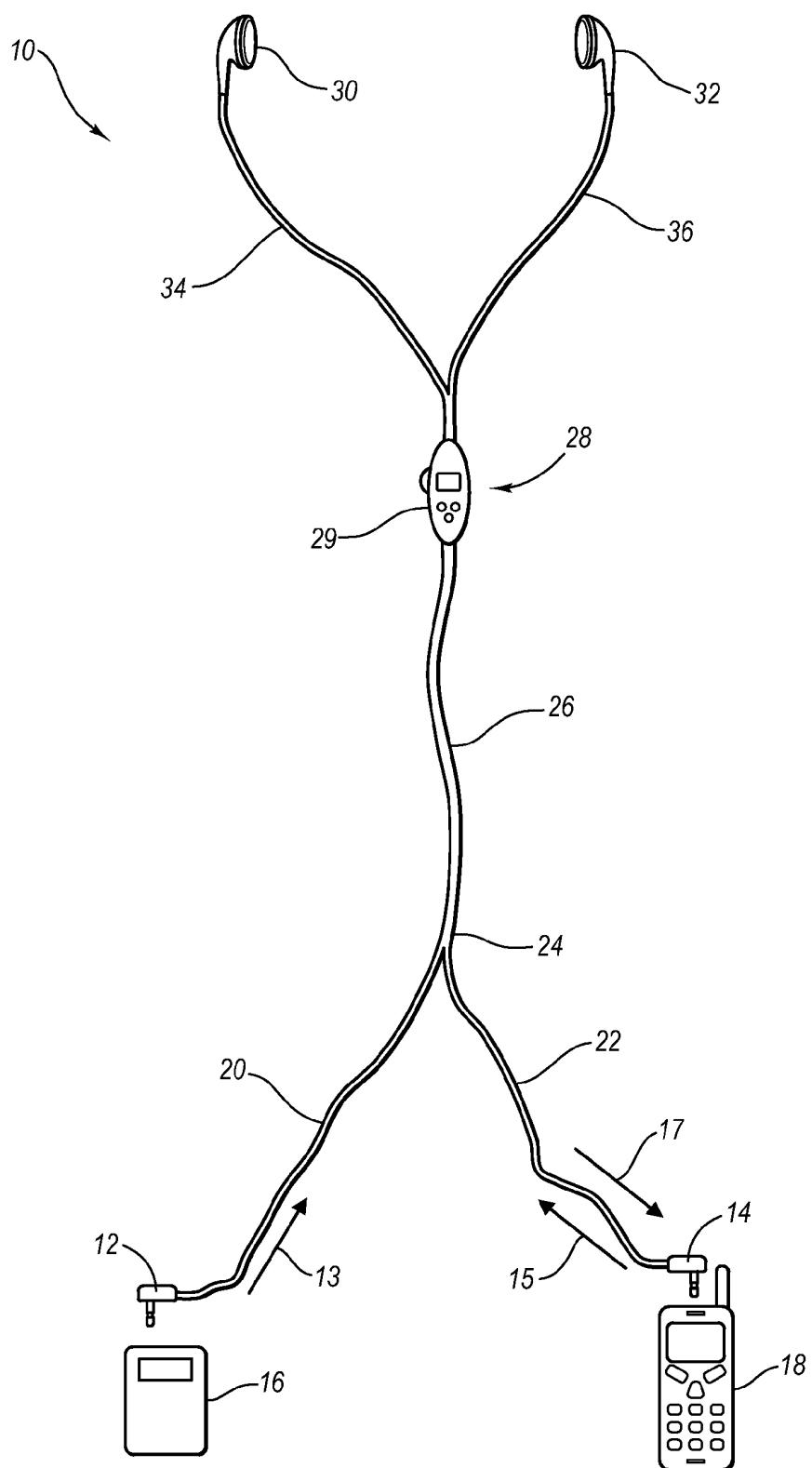


Fig. 1

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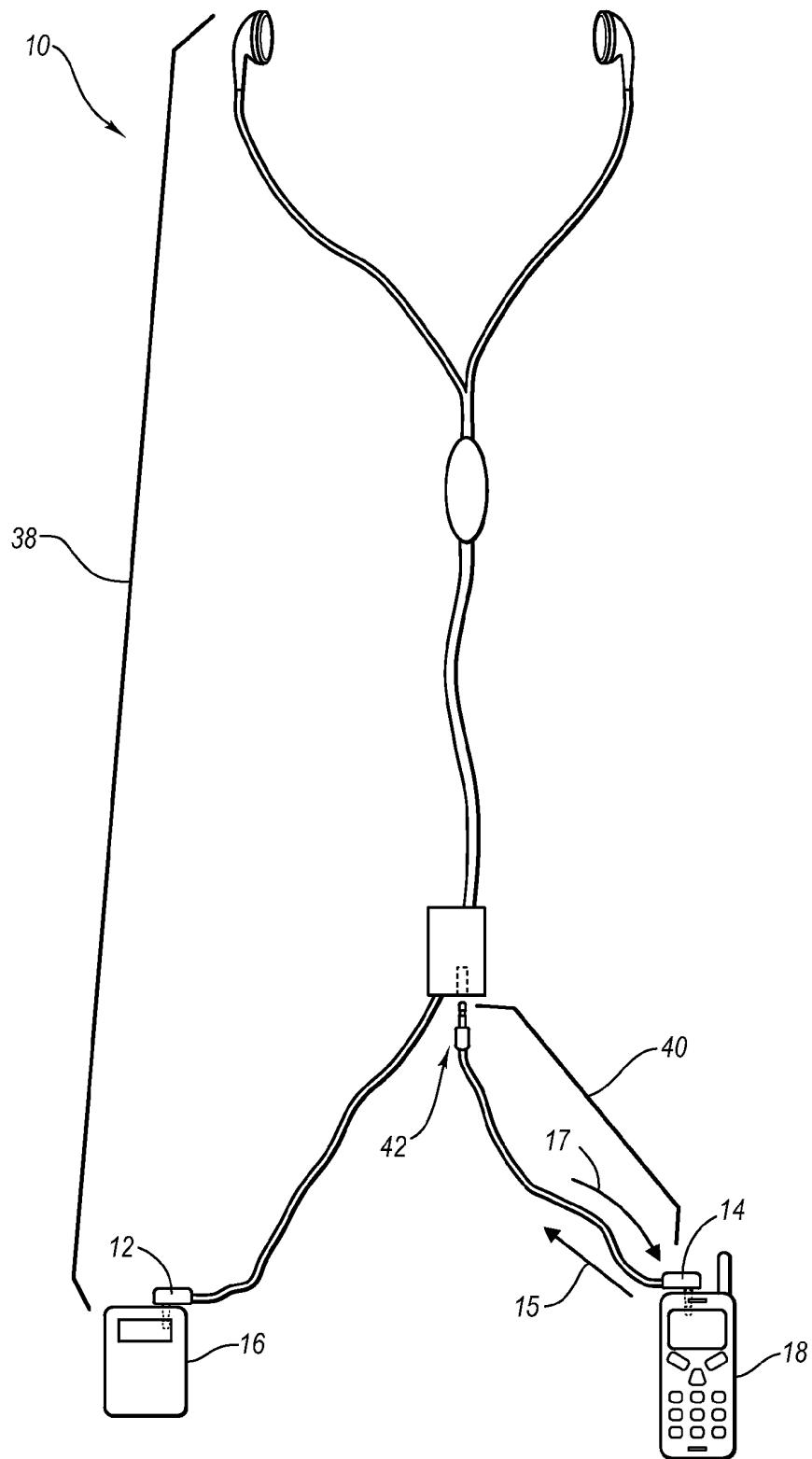


Fig. 2

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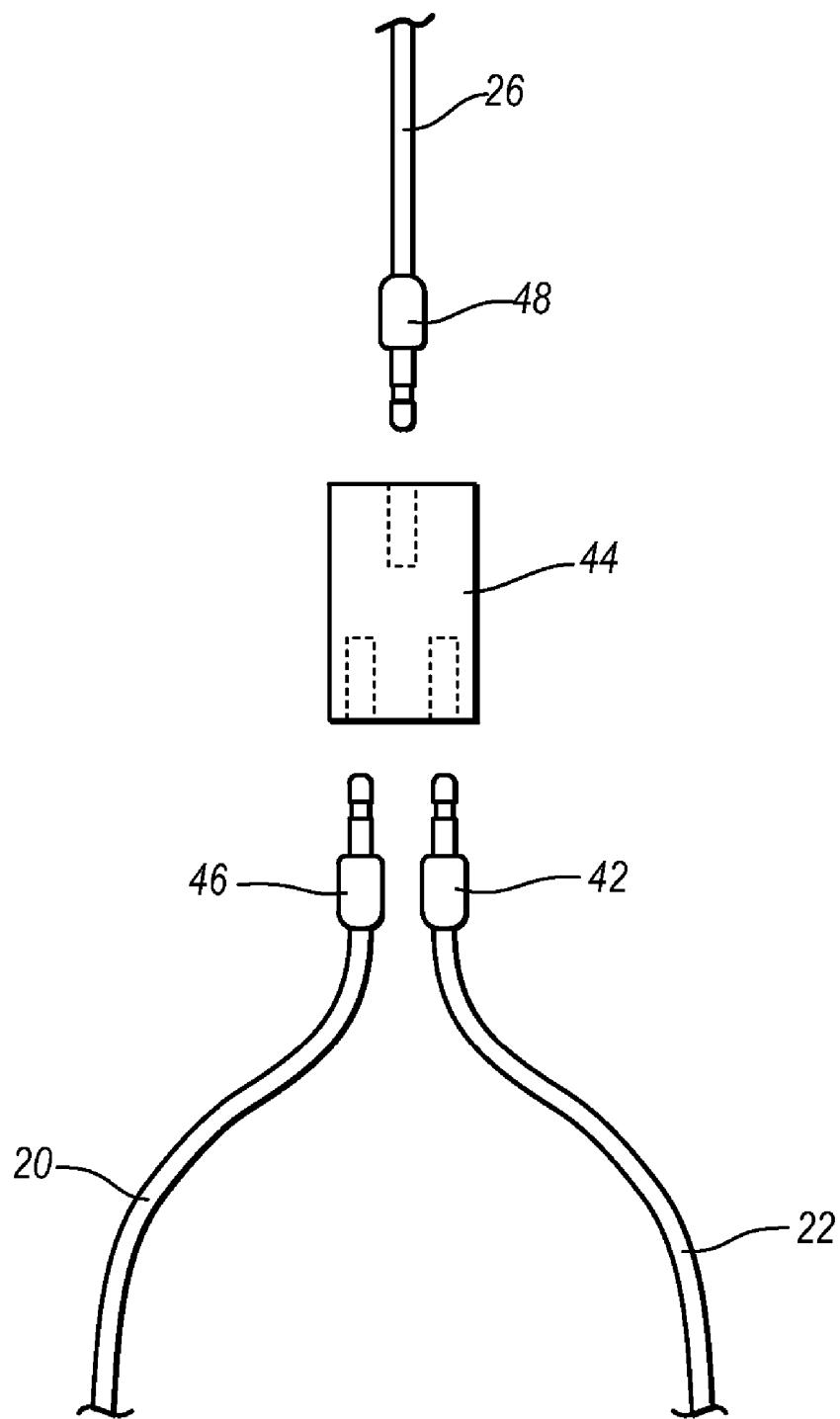


Fig. 3

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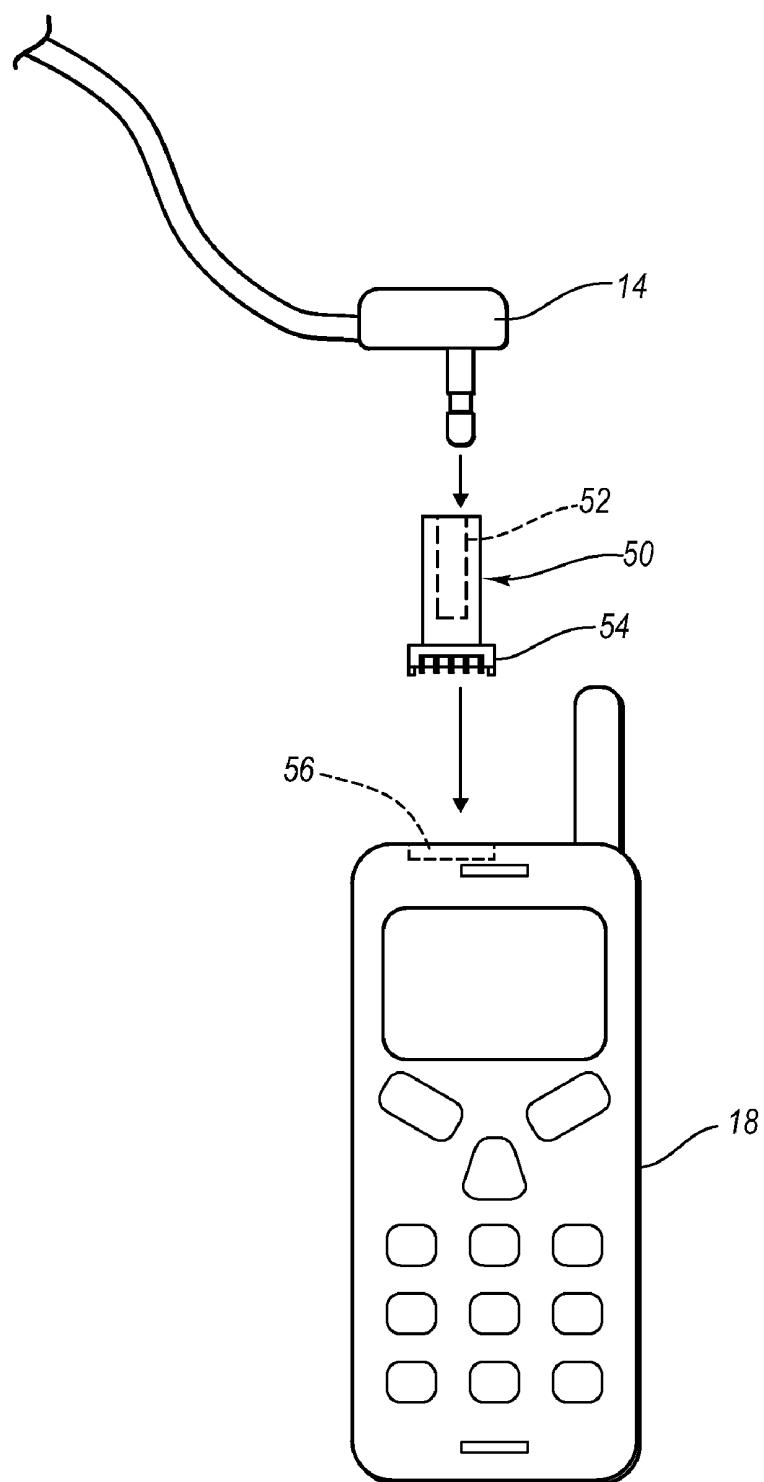


Fig. 4

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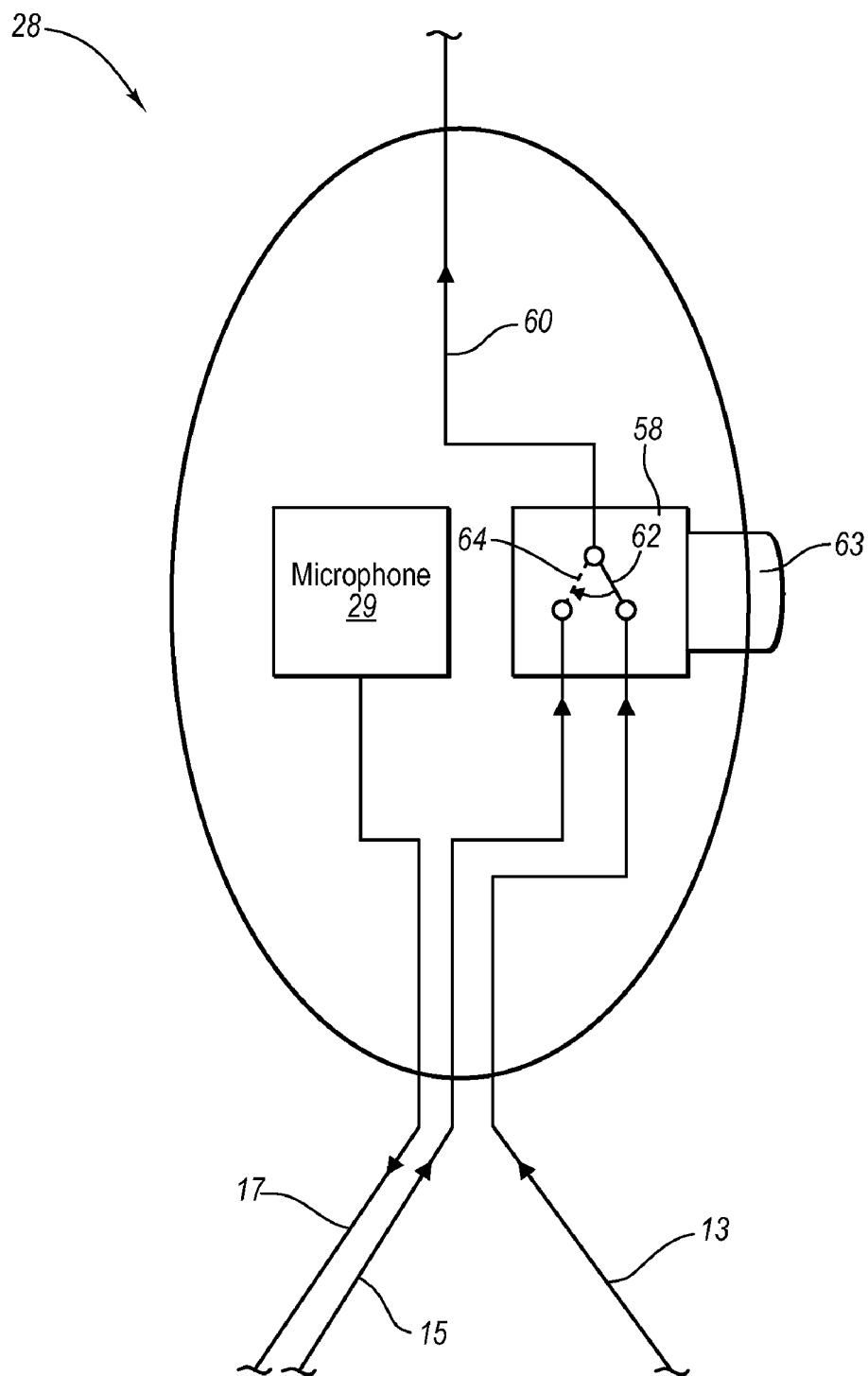


Fig. 5

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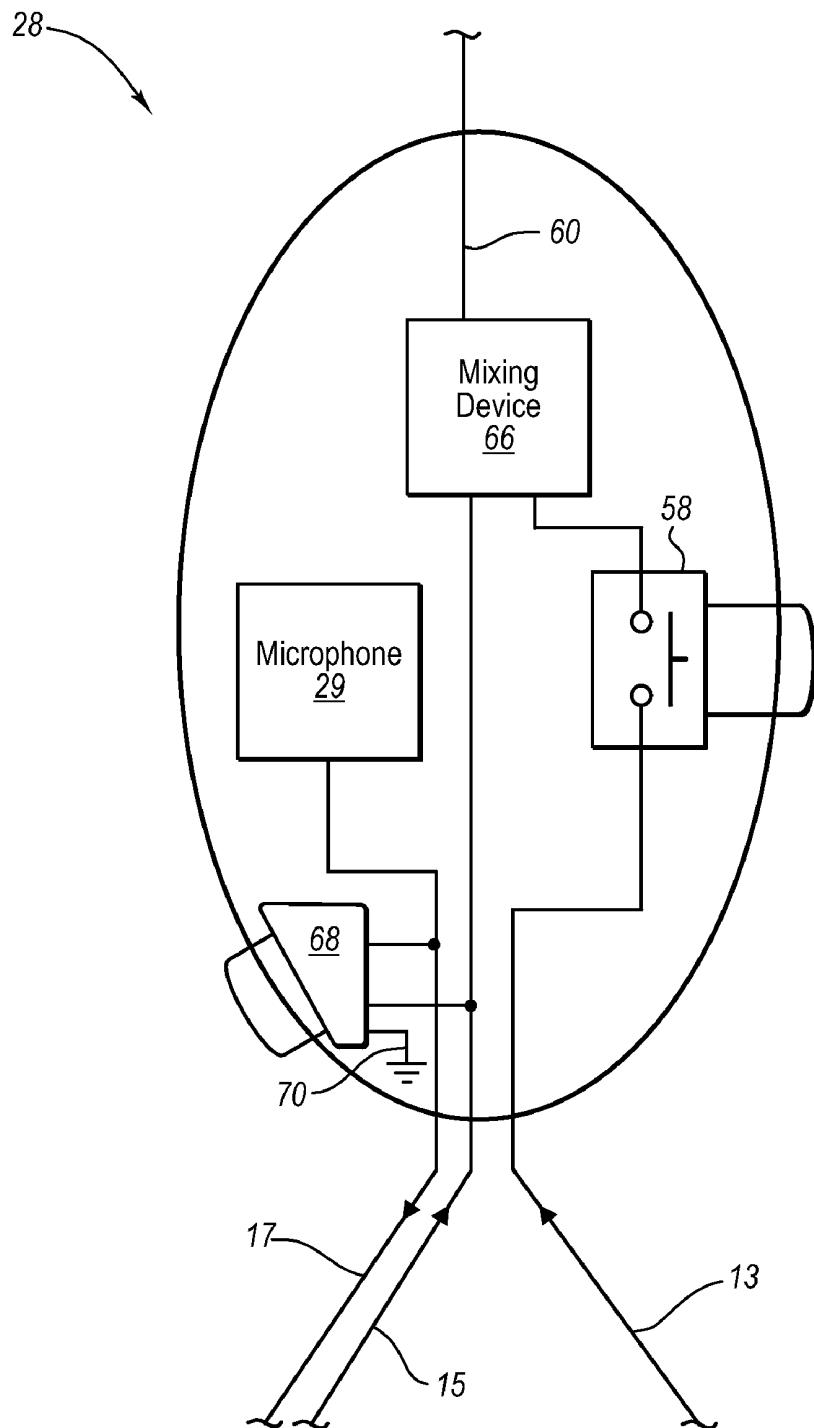


Fig. 6

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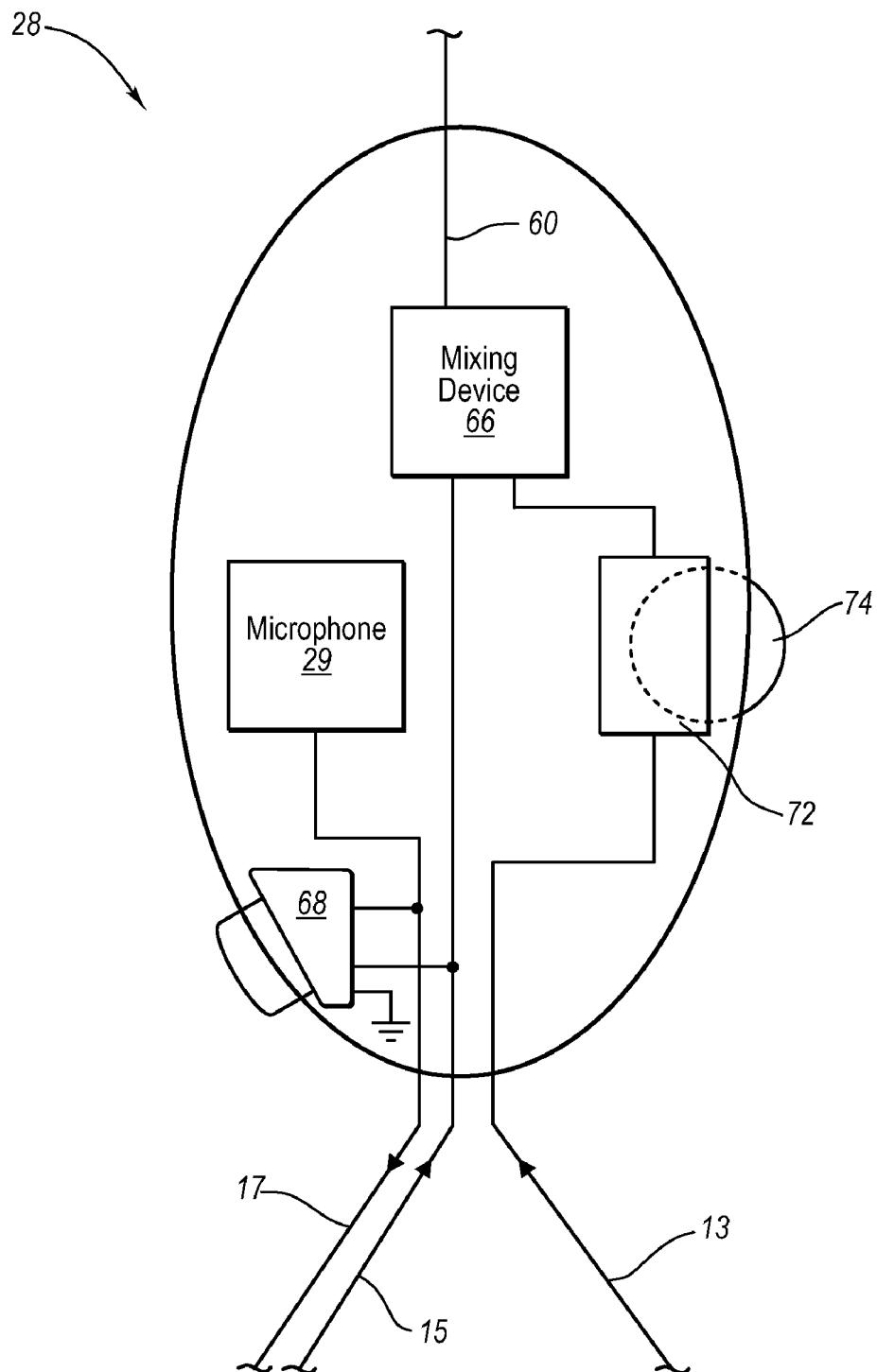


Fig. 7

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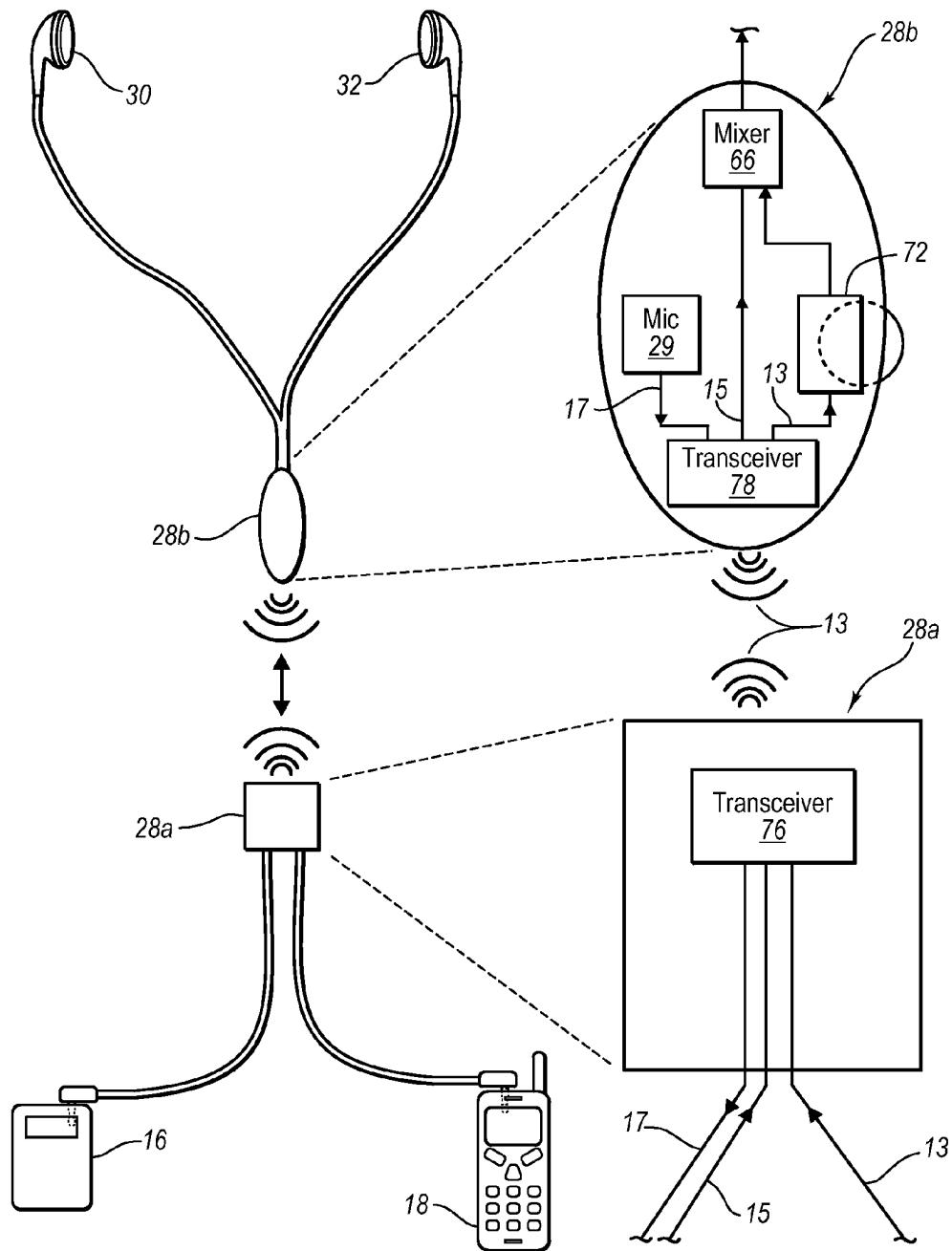


Fig. 8

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PERSONAL PORTABLE INTEGRATOR FOR MUSIC PLAYER AND MOBILE PHONE

CROSS-REFERENCE TO RELATED APPLICATIONS

The present invention is a continuation of U.S. patent application Ser. No. 10/382,960, filed on Mar. 6, 2003, entitled "PERSONAL PORTABLE INTEGRATOR FOR MUSIC PLAYER AND MOBILE PHONE," which claims the benefit of priority to U.S. Provisional Patent Application No. 60/370,711, filed on Apr. 9, 2002, entitled "SPLIT STYLE HEADPHONES." The entire content of each of the aforementioned patent applications is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. The Field of the Invention

This invention relates to integrating electronic devices and, more particularly, to novel systems and methods for integrating services provided by personal music players and mobile phones.

2. Background and Relevant Art

The use of mobile telephones and other wireless communication devices has increased dramatically in recent years. Likewise, electronic music players, such as MP3, CD, DVD, and like players have proliferated. Some companies have attempted to integrate music players and mobile two-way communication devices into single devices. While integration may reduce the number of devices a user is required to carry, a user may unnecessarily discard devices that are still fully functional, incurring unnecessary expense.

With respect to music players and mobile phones, various conflicts may arise when attempting to operate independent devices simultaneously. For example, users may listen to portable music players while exercising, traveling, working, relaxing, and performing like activities. However, users may desire to simultaneously place and receive phone calls, activities that may be inherently difficult to perform while listening to music or other audio material. For example, a user may be unable to hear a phone ring while listening to music using headphones, earphones, or the like. Moreover, if a user is able to accept a call, the user may be required to remove headphones, reduce the volume of or mute a music player, pick up a mobile phone handset, or like actions, in order to accept or place a call. This may be an excessively clumsy process.

What is needed is apparatus and methods for users to simultaneously accept and place phone calls using a mobile phone or other two-communication device while listening to music, or other audio material using an independent audio delivery device.

What is further needed is apparatus and methods to integrate the services of substantially any arbitrary two-way communication device with substantially any arbitrary music or audio delivery device.

BRIEF SUMMARY OF THE INVENTION

A primary object of the present invention is to provide apparatus and methods for integrating two-way communication devices with audio delivery devices. An apparatus in accordance with the invention may include a first electrical connector connected to receive a first audio signal from a substantially arbitrarily selectable audio delivery device, such as an MP3, CD, DVD, radio, or other media player. A second electrical connector may be connected to receive a

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second audio signal from a substantially arbitrarily selectable two-way communication device, such as a mobile phone, or a two-way radio such as a walkie-talkie, citizen band radio (e.g., CB), HAM radio, marine and aviation radio, and the like.

10 A coupling device independent from the audio and two-way communication devices may be connected to receive the first and second audio signals. A third audio signal comprising at least one of the first and second audio signals may be transmitted from the coupling device to an acoustic device, such as headphones, earphones, speakers, or the like to convert the third audio signal to an acoustic wave having an audio range corresponding to a hearing range of a user.

15 In certain embodiments, a switch may be connected to the apparatus to enable a user to selectively switch between the first and second audio signals to provide the third audio signal to the acoustic device. In other embodiments, a mixer may be connected to the apparatus to mix the first and second audio signals to create the third audio signal.

20 In selected embodiments, the apparatus may include a microphone connected to transmit a voice signal of a user to the two-way communication device. Thus, the two-way communication device may be located away from the face of the user. The apparatus may also include a volume controller connected to selectively control the volume of at least one of the first and second audio signals. In certain embodiments, the volume controller may control the first audio signal (e.g., the audio signal originating from the audio delivery device) so that a user may selectively raise or lower the volume of the music or other media while receiving or placing a call.

25 In selected embodiments, the apparatus may employ electrical wiring to route the audio signals and the voice signal to and from the coupling device. A switch, selectively operable by a user, may be used to connect at least two of the second audio signal wire, the voice signal wire, and a ground wire, to activate a function of the two-way communication device. For example, if the two-way communication device is a mobile phone, the switch may be used to trigger a function of the mobile phone such as a mute command, a call connect command, a call disconnect command, voice-activated dialing, a command to call the last number dialed, and the like.

30 In selected embodiments, the apparatus may include a volume controller connected to selectively control the volume of at least one of the first and second audio signals. In certain embodiments, the volume controller may control the first audio signal (e.g., the audio signal originating from the audio delivery device) so that a user may selectively raise or lower the volume of the music or other media while receiving or placing a call.

35 In selected embodiments, the apparatus may employ electrical wiring to route the audio signals and the voice signal to and from the coupling device. A switch, selectively operable by a user, may be used to connect at least two of the second audio signal wire, the voice signal wire, and a ground wire, to activate a function of the two-way communication device. For example, if the two-way communication device is a mobile phone, the switch may be used to trigger a function of the mobile phone such as a mute command, a call connect command, a call disconnect command, voice-activated dialing, a command to call the last number dialed, and the like.

40 The coupling device may contain any or all of the hardware previously described including but not limited to the microphone, the switches, the mixer, and the volume controller. In selected embodiments, the audio signal from the two-way communication device may be characterized by a threshold value. The second audio signal may be accorded priority relative to the first audio signal originating from the audio delivery device. Thus, the second audio signal may interrupt the first audio signal upon reaching the threshold value.

BRIEF DESCRIPTION OF THE DRAWINGS

45 The objects and features of the present invention will become more fully apparent from the following description, taken in conjunction with the accompanying drawings. Understanding that these drawings depict only typical embodiments of the invention and are, therefore, not to be considered limiting of its scope, the invention will be described with additional specificity and detail through use of the accompanying drawings in which:

50 FIG. 1 is a plan view of one embodiment of a personal portable integrator usable with a music player and a mobile phone;

55 FIG. 2 is a plan view of one embodiment of a personal portable integrator having a device-specific link to a two-way communication device;

FIG. 3 is a schematic block diagram illustrating one embodiment of connectors that may be used to adapt the invention to a wide variety of devices;

FIG. 4 is a schematic block diagram of one embodiment of an adapter that may be used to interface to a specific device;

FIG. 5 is a schematic block diagram of one embodiment of components contained within a coupling device in accordance with the invention;

FIG. 6 is a schematic block diagram of an alternative embodiment of components contained within a coupling device in accordance with the invention;

FIG. 7 is a schematic block diagram of another alternative embodiment of components contained within a coupling device in accordance with the invention; and

FIG. 8 is a schematic block diagram of one embodiment of a personal portable integrator usable with a music player and a mobile phone using wireless technology.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

It will be readily understood that the components of the present invention, as generally described and illustrated in FIGS. 1 through 8 herein, could be arranged and designed in a wide variety of different configurations. Thus, the description herein is not intended to limit the scope of the invention, but is merely representative of certain presently preferred embodiments of devices and systems in accordance with the invention. Those of ordinary skill in the art will, of course, appreciate that various modifications to the details herein may easily be made without departing from the essential characteristics of the invention, as described. Thus, the following information is intended only by way of example, and simply illustrates certain presently preferred embodiments consistent with the invention.

Referring to FIG. 1, a portable integrator 10 for use with a two-communication device 18, such as a mobile phone 18, and an audio delivery device 16, such as a portable MP3 player or CD player, may include electrical connectors 12, 14 to interface with the devices 16, 18. The electrical connectors 12, 14 may vary according to the device. For example, an audio device 16 may require a jack 12 having specific dimensions and with a specified number of contact points. Likewise, a connector 14 may connect to a particular communication device 18. The connectors 12, 14 may be modified as needed to adapt to other devices 16, 18.

The connectors 12, 14 may be adapted to receive and provide signals 13, 15, 17 from the devices 16, 18. For example, the connector 12 may simply receive an audio signal 13 from the audio device 16. The signal 13 may be a monophonic, stereophonic, or like representation of an audio signal 13. Likewise, the connector 14 may receive an audio signal 15 from the communication device 18. In addition, the connector 14 may provide a voice signal 17, or other input signal 17, to the communication device 18 from a user thereof or other outside source.

Sheathed flexible wires 20, 22 or other transmission means such as optical fibers 20, 22, or wireless technology such as Bluetooth may be used to carry the signals 13, 15, 17 to and from the devices 16, 18. In certain embodiments, a reinforcement member 24 may be used to provide strength at a junction point 24 of the lines 20, 22. The reinforcement member 24 may also be used to form a transition point 24 where wires 20, 22 may be bundled together beneath a single protective sheathing 26.

A coupling device 28 may receive and transmit the signals 13, 15, 17 through the path 26. The coupling device 28 may

act as a controller 28 or hub 28 to route the signals 13, 15, 17 to an acoustic device 30, 32, such as headphones 30, 32, earphones 30, 32, speakers 30, 32, or the like. The coupling device 28 may also contain a microphone 29, thus providing a hands free set 29, 30, 32, usable with a mobile phone 18. A pair of wires 34, 36 or other communication paths 34, 36 may connect the coupling device 28 to the acoustic device 30, 32.

Referring to FIG. 2, as was previously mentioned, devices 16, 18, such as mobile phones 18, may not use a standardized jack 12, 14. However, it may be undesirable to provide a separate integrator device 10 for each variation of devices 12, 14 that may be available. Therefore, in certain embodiments, a portion 38 of the portable integrator 10 may be provided as a universal component 38 while another portion 40 may serve as a device-specific component 40. For example, audio devices 16 may use a standardized connector 12 or jack 12.

Therefore, a universal component 38 may adapt to the vast majority of audio devices 16 that may be available. Conversely, many two-way communication devices 18, such as mobile phones 18 may not have standardized connections 14. Therefore, device-specific components 40 may be provided having a standard connection 42 that may interface with the universal component 38, while another adapter 14 or connector 14 may be specific to the device 18.

In cases where devices 18 may have a varying number of inputs 17 and outputs 15, dead pins, wires (communication paths), and the like may be used as needed to increase or decrease the number of inputs 15 or outputs 17 according to specific devices 18. In addition, a user may only desire to use a single device 16 for a given period of time and may wish to remove the portion 40 until it is needed.

Referring to FIG. 3, while continuing to refer generally to FIGS. 1 and 2, adaptability of the integrator device 10 may be provided in various ways. For example, in certain embodiments, the integrator device 10 may include an adapter 44 that may provide an interface 44 to each of the devices 12, 18, 28. In selected embodiments, a connection 20 to an audio device 16 may be swapped with another connection 20 fitted for another device 16, a connection 22 to a communication device 18 may be swapped with another connection 22 fitted for another communication device 18, a coupling device 28 and an acoustic device 30, 32 may be swapped with other devices 28, 30, 32, and the like. As was previously mentioned, certain portions 26, 20, 22 may be added or deleted as needed by the user. The adapter 44 may use a variety of connectors 42, 46, 48 to connect to the adapter 44. In certain embodiments, the adapter 44 may wirelessly communicate with each of the devices 16, 18 using a wireless technology, thereby acting as a wireless communication hub 44.

Referring to FIG. 4, in selected embodiments, adapters 50 may be provided in accordance with the invention to adapt a portable integrator 10 to specific devices 18. For example, an adapter 50 may include an interface 52 for interfacing with a connector 14. Likewise, the adapter 50 may include another interface 54 that may connect directly to a device 18 at an input 56. In addition, other features may be built into the adapter 50 such as impedance matching, signal amplification, and the like.

Referring to FIG. 5, in certain embodiments, the coupling device 28 may include a switch 58 to selectively enable a user to connect one of the signals 13, 15 through to the output 60. For example, a user may listen to an audio recording or live transmission from an audio device 16 with the switch 58 in a first position 62. If the user receives or desires to place a call, the switch 58 may be changed to a second position 64 to connect the communication device 18 through to the output 60. The switch 58 may include a button 63 or like mechanism

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63 to enable a user operation thereof. Thus, the signal 13 from the audio device 16 may be conveniently and selectively disconnected while the user operates the communication device 18. In this way, simple operation of a switch 58 may enable a user to operate an audio delivery device 16 and a communication device 18 through a single acoustic device 30, 32.

The coupling device 28 may also include a microphone 29 to transmit a voice or other audio signal 17 back to the communication device 18. The coupling device 28 may contain one or several apertures to permit an acoustic wave to directly enter and drive the microphone 29. In certain embodiments, the coupling device 28 may be located, such as by clipping, proximate the face of a user so that the switch 58, microphone 29, and other controls located therein, may be easily accessed and used by a user. Likewise, the communication device 18 and audio device 16 may be located away from the user's face, clipped along a belt line, in a pocket, in a bag, or the like.

Referring to FIG. 6, in certain embodiments, the coupling device 28 may include a mixer 66 to mix the audio signals 13, 15 originating from the audio and communication devices 16, 18. Thus, the audio signals 13, 15 may be heard simultaneously by a user through an acoustic device 30, 32. In certain instances, a ring or other sound may indicate a call is being received by the communication device 18 and may be audible over the sound of the music or other media through the acoustic device 30, 32. In this case, the audio signal 13 from the audio device 16 may be muted or disconnected by a user with a switch 58 while the user receives or places a call. Once the call is finished, the user may once again trigger the switch to begin listening to music or other audible media. Thus, a user may simultaneously hear and monitor both devices 16, 18 through a single acoustic device 30, 32 and may mute or disconnect at least one of the devices 16, 18 when needed.

In certain embodiments, the coupling device 28 may also include a switch 68 or other control device 68 to control features of the communication device 18, the audio device 16, or a combination thereof. For example, a switch 68 may connect inputs 17 or outputs 15 of the communication device 18 together, connect them to a ground 70, provide control signals to the device 18, or the like, to control features of the communication device 18. For example, a switch 68 or control device 68 may control features of the communication device 18 such as performing a mute command, a call connect command, a call disconnect command, voice-activated dialing, a command to call the last number dialed, or like features. The features activated may vary from device 18 to device 18 and may depend on the device engineering and configuration.

Referring to FIG. 7, in selected embodiments, the coupling device 28 may include a volume controller 72 to control the volume of at least one of the audio signals 13, 15 from the audio device 16 and the communication device 18. For example, as in the previous example, a mixer 66 may provide that audio signals 13, 15 be heard simultaneously by a user through an acoustic device 30, 32. When a call is received or placed on the communication device 18, a user may adjust the volume of the audio signal 13 using the volume controller 72. If desired, the user may adjust the volume such that music or audio material is still heard in the background while receiving or placing a call. Once a call is finished, a user may readjust the volume to a desired level. Thus, a user may simultaneously hear and monitor both devices through a single acoustic device 30, 32, and may adjust the volume of at least one of the devices 16, 18 when desired.

Referring to FIG. 8, in certain embodiments, a coupling device 28 may be divided into a pair of components 28a, 28b that wirelessly communicate with one another using a technology such as Bluetooth. For example, a first component 28a may include a transceiver 76 receptive to the signals 13, 15, 17 from the audio and communication devices 16, 18. The

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transceiver 76 may convert these signals to wirelessly transmittable frequencies 80 using an appropriate wireless protocol such that they may be transmitted to a peer transceiver 78. The transceiver 78 may then convert the frequencies 80 back to signals 13, 15, 17, where they may be processed by the coupling device 28b in accordance with a process like those described in FIGS. 5 through 7.

One of ordinary skill in the art will recognize that the wireless technology described in FIG. 8 may be used in a wide variety of different configurations and the example presented herein is not intended to limit the scope of the invention. For example, in certain embodiments, portions or all of the circuitry 29, 66, 72 or components 29, 66, 72 may be located in the housing 28a. In other embodiments, each of the devices 16, 18, may communicate wirelessly with the coupling device 28, 28a or 28b.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative, and not restrictive. The scope of the invention is, therefore, indicated by the appended claims, rather than by the foregoing description. All changes within the meaning and range of equivalency of the claims are to be embraced within their scope.

I claim:

1. A portable apparatus for integrating a two-way communication device and an audio delivery device, wherein the portable apparatus is configured in size and shape to be portably carried in either a hand of a user or an article of clothing during use of the portable apparatus, the apparatus comprising:

a first electrical connector configured to receive a first audio signal from a substantially arbitrarily selectable audio delivery device;

a second electrical connector configured to receive a second audio signal from a substantially arbitrarily selectable two-way communication device;

a coupling device independent from the audio and two-way communication devices, the coupling device connected to receive the first and second audio signals, and to transmit a third audio signal comprising at least one of the first or second audio signals; and

an acoustic device adapted to convert the third audio signal to an acoustic wave having an audio range corresponding to a hearing range of a user;

wherein:

the coupling device comprises at least two physically separate devices; and

the at least two physically separate devices comprise means for enabling wireless communication between the at least two physically separate devices.

2. The portable apparatus as recited in claim 1, further comprising a first switch connected to selectively switch between the first and second audio signals to provide the third audio signal.

3. The portable apparatus as recited in claim 1, the apparatus further comprising a volume controller connected to selectively control the volume of at least one of the first or second audio signals.

4. The portable apparatus as recited in claim 1, wherein: at least one of the physically separate devices is remotely disposed from both of said first and second electrical connectors; and

another of the physically separate devices is connected to one or both of the first and second electrical connectors with wired or optical connection means.

5. The portable apparatus as recited in claim 1, wherein at least one of the first or second electrical connectors is physi-

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cally detached from the coupling device and wirelessly communicates with the coupling device.

6. The portable apparatus as recited in claim 1, wherein the coupling device is proximate the face of a user.

7. The portable apparatus as recited in claim 1, wherein the coupling device contains at least one of a microphone, a switch, a mixer, or a volume controller.

8. The portable apparatus as recited in claim 1, wherein the first and second electrical connectors comprise jacks that each have a male terminal end.

9. The portable apparatus as recited in claim 1, wherein only one of the first and second electrical connectors is detachably connected to the coupling device with a flexible wire.

10. The portable apparatus as recited in claim 1, wherein the coupling device is detachably connectable to both of the audio and two-way communications devices with the first and second electrical connectors, respectively.

11. The portable apparatus as recited in claim 1, further comprising a mixer connected to mix the first and second audio signals to create the third audio signal.

12. The portable apparatus as recited in claim 11, wherein the coupling device comprises a mixing controller for selectively adjusting and controlling a mixing weight of the first or second audio signals as they are mixed by the mixer into the third audio signal.

13. The portable apparatus as recited in claim 12, wherein the mixing controller enables volume of a selected one of the first and second audio signals to be selectively reduced without being muted during a simultaneous use of both the audio and two-way communication devices during which both the first and second audio signals are audible as part of the third audio signal during the simultaneous use.

14. The portable apparatus as recited in claim 1, further comprising a microphone connected to transmit a voice signal to the two-way communication device.

15. The portable apparatus as recited in claim 14, further comprising means for adjusting a volume associated with the microphone.

16. The portable apparatus as recited in claim 1, further comprising:

a switch configured to activate a function of the two-way communication device; wherein:

the two-way communication device is a mobile phone; and

the function is selected from the group consisting of a mute command, a call connect command, a call disconnect command, voice-activated dialing, and a command to call the last number dialed.

17. An article of manufacture configured to receive the portable apparatus as recited in claim 1, wherein:

the portable apparatus is available by accessing an article of manufacture into which the portable apparatus has been received; and

the coupling device comprises means for transmitting an input signal to one of the audio delivery device and the two-way communication devices.

18. The portable apparatus as recited in claim 17, wherein the article of manufacture includes any of an article of clothing and a portable carrier comprising a backpack.

19. The portable apparatus as recited in claim 17, wherein the coupling device is configured to receive the first or second audio signal over an optical medium.

20. The portable apparatus as recited in claim 17, wherein the coupling device is configured to transmit any of the first audio signal, the second audio signal, and the input signal over any of an optical, or wireless medium.

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21. The portable apparatus as recited in claim 17, wherein the coupling device is integrally coupled to the acoustic device, such that the acoustic device and the coupling device are not physically separated.

22. The portable apparatus as recited in claim 17, wherein the apparatus is integrated within an article of clothing or a personal carrier device into which the audio delivery device, and the two-way communication device is integrated during use.

23. The portable apparatus as recited in claim 22, wherein the article of clothing comprises any of a jacket, a coat, or head gear including a helmet.

24. The portable apparatus as recited in claim 22, wherein the personal carrier comprises any of a backpack, or a belt pack.

25. A method for integrating a two-way communication device and an audio delivery device with a portable apparatus that is configured in size and shape to be portably carried in either a hand of a user or an article of clothing during use of the portable apparatus, the method comprising the portable apparatus performing the following:

receiving a first audio signal from a substantially arbitrarily selectable audio delivery device;

receiving a second audio signal from a substantially arbitrarily selectable two-way communication device;

receiving, by the portable apparatus, which is independent from the audio delivery and two-way communication device, the first and second audio signals, and transmitting a third audio signal comprising at least one of the first or second audio signals; and

converting the third audio signal to an acoustic wave having an audio range corresponding to a hearing range of a user;

wherein the portable apparatus communicates with both of the audio delivery device and two-way communication devices at the same time, and communicates at least two of the first, second, and third audio signals wirelessly.

26. The method of claim 25, further comprising transmitting a voice signal to the two-way communication device.

27. The method of claim 25, the method further comprising selectively controlling the volume of at least one of the first or second audio signals.

28. The method of claim 25, wherein the independent portable apparatus performs a task selected from the group consisting of switching between the first and second audio signals, mixing the first and second audio signals, transmitting the voice signal to the two-way communication device, and adjusting the volume of the first audio signal.

29. The method of claim 25, further comprising swapping the audio delivery device with a second audio delivery device.

30. The method of claim 25, further comprising: connecting a switch with the two-way communication device to activate a function of the two-way communication device; wherein:

the two-way communication device is a mobile phone; and

the function is selected from the group consisting of a mute command, a call connect command, a call disconnect command, voice-activated dialing, and a command to call the last number dialed.

31. The method of claim 25, further comprising swapping the two-way communication device with a second two-way communication device.

32. The method of claim 25, wherein the portable apparatus communicates no more than two of the first audio signal, the second audio signal, and the third audio signal over any of an electrical or optical wire.

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33. The method of claim **25**, further comprising selectively switching between the first and second audio signals to provide the third audio signal.

34. The method of claim **33**, further comprising mixing the first and second audio signals to create the third audio signal.

35. The apparatus as recited in claim **25**, wherein the portable apparatus communicates no more than one of the first audio signal, the second audio signal, and the third audio signal over any of an electrical or optical wire.

36. A portable and wireless apparatus for wirelessly integrating a two-way communication device and an audio delivery device, wherein the portable and wireless apparatus is configured in size and shape to be portably carried in either a hand of a user or an article of clothing during use of the portable and wireless apparatus, the portable and wireless apparatus comprising:

means for wirelessly receiving a first audio signal from a substantially arbitrarily selectable audio delivery device;

means for wirelessly receiving a second audio signal from a substantially arbitrarily selectable two-way communication device;

a coupling device independent from the audio and two-way communication devices, the coupling device comprising said means for receiving said first and second audio signals, said coupling means further comprising:

means for transmitting a third audio signal comprising at least one of the first or second audio signals to an acoustic device adapted to convert the third acoustic wave to an audio range corresponding to a hearing range of a user;

means for mixing the first and second audio signals into the third audio signal and for enabling simultaneous use of said audio and two-way communications devices.

37. An apparatus as recited in claim **36**, further comprising means for selectively adjusting and controlling a mixing weight of the first and second audio signals as part of the third audio signal.

38. An apparatus as recited in claim **36**, further comprising a first switch connected to selectively switch between the first and second audio signals to provide the third audio signal.

39. An apparatus as recited in claim **36**, the apparatus further comprising a volume controller connected to selectively control the volume of at least one of the first or second audio signals.

40. An apparatus as recited in claim **36**, wherein the coupling device is proximate the face of a user.

41. An apparatus as recited in claim **36**, wherein the coupling device contains at least one of a microphone, a switch, a mixer, or a volume controller.

42. An apparatus as recited in claim **36**, wherein one or both of the audio delivery device or the selectable two-way communication device communicates wirelessly through a wireless transceiver component that is physically connected to the audio delivery device or the selectable two-way communication device using an electrical connector.

43. An apparatus as recited in claim **36**, further comprising a mixer connected to mix the first and second audio signals to create the third audio signal.

44. An apparatus as recited in claim **43**, wherein the coupling device comprises a mixing controller for selectively adjusting and controlling a mixing weight of the first or second audio signals as they are mixed by the mixer into the third audio signal.

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45. An apparatus as recited in claim **44**, wherein the mixing controller enables volume of a selected one of the first and second audio signals to be selectively reduced without being muted during a simultaneous use of both the audio and two-way communication devices during which both the first and second audio signals are audible as part of the third audio signal during the simultaneous use.

46. An apparatus as recited in claim **36**, further comprising a microphone connected to transmit a voice signal to the two-way communication device.

47. An apparatus as recited in claim **46**, further comprising means for adjusting a volume associated with the microphone.

48. An apparatus as recited in claim **36**, further comprising a switch configured to activate a function of the two-way communication device; wherein:

the two-way communication device is a mobile phone;

and

the function is selected from the group consisting of a mute command, a call connect command, a call disconnect command, voice-activated dialing, and a command to call the last number dialed.

49. An apparatus as recited in claim **36**, wherein the coupling device comprises at least two physically separate devices.

50. An apparatus as recited in claim **49**, wherein the at least two physically separate devices comprise means for enabling wireless communication between the at least two physically separate devices.

51. An apparatus as recited in claim **49**, wherein one of the at least two physically separate devices is physically connected to one or both of the audio delivery device or the two-way communication device, such that the physically connected audio delivery device or the two-way communication device communicates wirelessly through the one of the at least two physically separate devices.

52. An article of manufacture configured to receive the apparatus as recited in claim **36**, wherein:

the apparatus is available by accessing an article of manufacture into which the portable apparatus has been received; and

the coupling device comprises means for transmitting an input signal to one of the audio delivery device or the two-way communication device.

53. The apparatus as recited in claim **52**, wherein the article of manufacture includes any of an article of clothing and a portable carrier.

54. The apparatus as recited in claim **52**, wherein the coupling device is configured to receive the first or second audio signal over an optical medium or electrical wire before transmitting the third signal wirelessly.

55. The apparatus as recited in claim **52**, wherein the coupling device is integrally coupled to the acoustic device, such that the acoustic device and the coupling device are not separated.

56. The apparatus as recited in claim **52**, wherein the apparatus is integrated within an article of clothing or a personal carrier device into which the acoustic device is present during use.

57. The apparatus as recited in claim **56**, wherein the article of clothing comprises any of a jacket, a coat, or head gear.

58. The apparatus as recited in claim **56**, wherein the personal carrier comprises any of a backpack, or a belt pack.

* * * * *

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